

Evaluation Criteria		Station Options			
	City of Industry, Metrolink Station	Cal Poly Pomona	Pomona, Metrolink Station	Ontario Airport, Northside	Ontario Airport, Southside Metrolink Station
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints</i>					
<b>Soils/Slope Constraints</b>	<ul style="list-style-type: none"> <li>Bedrock consists of sandstone</li> <li>Slope with a 2:1 ratio can be constructed, in general. Steeper slope may be feasible</li> <li>Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>Bedrock consists of andesitic volcanics</li> <li>Slope with a 2:1 ratio can be constructed, in general. Steeper slope may be feasible</li> <li>Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>Soils consist of younger fan deposits</li> <li>Slope with a 2:1 ratio can be constructed, in general</li> <li>Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>Soils consist of younger fan deposits</li> <li>Slope with a 2:1 ratio can be constructed, in general</li> <li>Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>Soils consist of wind-blown sands and alluvial deposits of modern washes</li> <li>Slope with a 2:1 ratio can be constructed, in general</li> <li>Low potential for landslide</li> </ul>
	●	●	●	●	●
<b>Seismic Constraints</b>	<ul style="list-style-type: none"> <li>Low to moderate potential for liquefaction</li> </ul>	<ul style="list-style-type: none"> <li>Low to moderate potential for liquefaction</li> <li>The San Jose Fault runs through this station (Type B, MG MAX = 6.5)</li> <li>Moderate to high potential for surface rupture at the fault location</li> <li>Detail investigation recommended for the potential impact of the fault on the station</li> </ul>	<ul style="list-style-type: none"> <li>Moderate to high potential for liquefaction</li> </ul>	<ul style="list-style-type: none"> <li>Moderate to high potential for liquefaction</li> </ul>	<ul style="list-style-type: none"> <li>Moderate to high potential for liquefaction</li> </ul>
	●	●	●	●	●
<i>Maximize Avoidance of Areas with Potential Hazardous Materials</i>					
<b>Hazardous Materials/Waste Constraints</b>	No sites	No sites	No sites	No sites	No sites
	●	●	●	●	●

Least Favorable
 

 Most Favorable

**Table 2-H-19 continued**  
**Los Angeles to San Diego via Inland Empire High-Speed Train Station Evaluation Matrix**  
**San Bernardino to March ARB**

**Station** = Station Carried Forward

**Station** = Station Eliminated

**Station** = Primary or Secondary Reason for Elimination

Evaluation Criteria		Station Options			
	UPRR Colton Line/ San Bernardino	San Bernardino Santa Fe Depot	Downtown Riverside, Metrolink Station	UC Riverside Campus	March ARB
Travel Time	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Length	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Population /Employment Catchment (10-mile radius)	1,324,442	1,324,214	787,174	724,813	426,642
	●	●	●	●	●
<i>Maximize Connectivity and Accessibility.</i>					
Intermodal Connection	Bus: No Metrolink: No Airport: No	Bus: Yes Metrolink: Yes Airport: No	Bus: Yes Metrolink: No Airport: No	Bus: Yes Metrolink: No Airport: No	Bus: Yes Metrolink: No Airport: Yes
	○	●	●	●	●
<i>Minimize Operating and Capital Costs.</i>					
Length	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Issues	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Construction Issues	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Capital Cost	Urban Station	Urban Station	Urban Station	Urban Station	Suburban Station

Evaluation Criteria		Station Options			
	UPRR Colton Line/ San Bernardino	San Bernardino Santa Fe Depot	Downtown Riverside, Metrolink Station	UC Riverside Campus	March ARB
<b>Right-of-Way Issues/Cost</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>	Sensitive Uses: None	Sensitive Uses: None Historic Santa Fe Depot, Urban Redevelopment Plan.	Sensitive Uses: Public Administration Building and Local Park	Sensitive Uses: University	Sensitive Uses: Military
	●	●	●	●	●
<b>Visual Quality Impacts</b>	Medium scale environment No historical significance Medium/high compatibility	Medium scale environment Historical Depot High compatibility	Small scale environment Historical significance Medium compatibility	Medium Scale Environment No Historical Significance Medium/high compatibility	Large scale environment No Historical significance High compatibility
	●	●	●	●	●
<i>Minimize Impacts on Natural Resources.</i>					
<b>Water Resources</b>	See discussion in alignment tables (LA Union Station to March AFB)				
	●	●	●	●	●
<b>Floodplain Impacts</b>	See discussion in alignment tables (LA Union Station to March AFB)				
	●	- RI at Diamond Bar Creek	●	●	●
<b>Wetlands</b>	None	None	None	None	None
	●	●	●	●	●
<b>Threatened and Endangered Species Impacts</b>	No Potential impacts Constraint Level = Low	No potential impacts Constraint Level = Low	No potential impacts Constraint Level = Low	No potential impacts  Constraint Level = Low	No likely impacts. Stephen's Kangaroo Rat habitat in the vicinity Constraint Level = Low/
	●	●	●	●	●

Evaluation Criteria		Station Options			
	UPRR Colton Line/ San Bernardino	San Bernardino Santa Fe Depot	Downtown Riverside, Metrolink Station	UC Riverside Campus	March ARB
<i>Minimize Impacts on Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>	Low-Mod Area: Y High Minority: Y Both LM/Minority: Y	Low-Mod Area: Y High Minority: Y LM/Minority: Y	Low-Mod Area: Y High Minority: Y Both LM/Minority: Y	Low-Mod Area: Y High Minority: Y Both LM/Minority: Y	Low-Mod Area: Y High Minority: N Both LM/Minority: N
	●	○	○	●	●
<b>Farmland Impacts</b>	None	None	None	None	None
	●	●	●	●	●
<i>Minimize Impacts on Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>	None	None	Ref# 80000833 Riverside-Arlington Heights Fruit Exchange	None	None
	●	●	●	●	●
<b>Parks and Recreation/Wildlife Refuge Impacts</b>	No impacts	No impacts	No impacts	No impacts	No impacts
	●	●	●	●	●
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>	Soils consist of alluvium and older lake deposits Slope with a 2:1 ratio can be constructed Low potential for landslide	Bedrock consists of sandstone Slope with a 2:1 ratio can be constructed, in general. Steeper slope may be feasible Low potential for landslide	Soils consist of older lake deposits Slope with a 2:1 ratio can be constructed Low potential for landslide	Soils and rock consist of alluvium and granitic rock Slope with a 2:1 ratio can be constructed Low to moderate potential for landslide	Soils consist of alluvium Slope with a 2:1 ratio can be constructed Low to moderate potential for landslide
	●	●	●	●	●
<b>Seismic Constraints</b>	Low to Moderate potential for liquefaction	Low to moderate potential for liquefaction	Moderate potential for liquefaction	Low to moderate potential for liquefaction	Moderate potential for liquefaction
	●	●	●	●	●

Evaluation Criteria		Station Options			
	UPRR Colton Line/ San Bernardino	San Bernardino Santa Fe Depot	Downtown Riverside, Metrolink Station	UC Riverside Campus	March ARB
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>	No sites	No sites	No sites	No sites	No sites
	●	●	●	●	●

○    ◐    ◑    ●  
Least Favorable      Most Favorable

**Table 2-H-19 continued**  
**Los Angeles to San Diego via Inland Empire High-Speed Train Station Evaluation Matrix**  
**Murrieta to Mira Mesa**

**Station** = Station Carried Forward

**Station** = Station Eliminated

**Station** = Primary or Secondary Reason for Elimination

Evaluation Criteria		Station Options			
	Murrieta, I-15/I-215 Interchange	Temecula/Murrieta Border	Escondido SR-78/I-15 Interchange	Escondido Transit Center	Mira Mesa
Travel Time	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Length	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Population / Employment Catchment (10-mile radius)	173,733	154,442	700,000	700,000	500,000
	○	○	●	●	●
<i>Maximize Connectivity and Accessibility.</i>					
<b>Intermodal Connection</b>	Bus: Yes Metrolink: No Airport: No	Bus: Yes Metrolink: No Airport: No	The site has direct access to Mission Road, Andreason Drive, and a rail spur. It is located one mile from access to SR-78 and to I-15. It could be served by bus transit	The site has direct access to Centre City Parkway and to Valley Parkway. It is within 1/8 mile of Escondido Transit Center, and 0.25-mile from a rail spur. It is less than 0.7 mile from access to SR-78 or to I-15	The site has direct access to Scripps Ranch Blvd., and then to Mira Mesa Blvd. and to I-15. Rail access is at least 3 miles away. The site could be served by bus transit, and it is ¾ mile from a Park-and-Ride lot on Mira Mesa Boulevard
	●	○	●	●	●
<i>Minimize Operating and Capital Costs.</i>					
Length	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Operational Issues	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Construction Issues	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Evaluation Criteria		Station Options			
	Murrieta, I-15/I-215 Interchange	Temecula/Murrieta Border	Escondido SR-78/I-15 Interchange	Escondido Transit Center	Mira Mesa
<b>Capital Cost</b>	Rural Station	Suburban Station	Urban Station	Urban Station	Suburban Station
<b>Right-of-Way Issues/Cost</b>	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>	Sensitive Uses: None	Sensitive Uses: None	The site cuts diagonally across the street grid, and would cause removal of 10 or more industrial or commercial buildings. However, the area is designated for general industrial and planned industrial uses, and is within the boundaries of the Escondido Redevelopment Project	The site is oriented to the street grid, but would still impact several existing industrial and commercial operations. A City fire station is located immediately to the west of the site. The area is designated for Planned Industrial use and SPA #9. It is also within the Escondido Redevelopment Project boundaries	This site was vacant in 1999, but many new residences have been built in the vicinity since then. All now-vacant land is designated for future residential use. City of San Diego Planning Dept. personnel recommended that this station site be relocated to area near Miramar Community College, west of I-15
	●	●	①	●	②
<b>Visual Quality Impacts</b>	<ul style="list-style-type: none"> <li>Medium scale environment</li> <li>No historical significance</li> <li>Medium/high compatibility</li> </ul>	<ul style="list-style-type: none"> <li>Medium scale environment</li> <li>No historical significance</li> <li>Medium/high compatibility</li> </ul>	<ul style="list-style-type: none"> <li>Medium scale environment</li> <li>No historical significance</li> <li>Medium/high compatibility</li> </ul>	<ul style="list-style-type: none"> <li>Medium scale environment</li> <li>No historical significance</li> <li>Medium/high compatibility</li> </ul>	<ul style="list-style-type: none"> <li>Medium scale environment</li> <li>No historical significance</li> <li>Medium/high compatibility</li> </ul>
	●	●	●	●	●
<i>Minimize Impacts on Natural Resources</i>					
<b>Water Resources</b>	See discussion in alignment tables (Murrieta to Mira Mesa)				
	●	●	●	●	●
<b>Floodplain Impacts</b>	See discussion in alignment tables (Murrieta to Mira Mesa)				
	●	●	①	①	①

Evaluation Criteria		Station Options			
	Murrieta, I-15/I-215 Interchange	Temecula/Murrieta Border	Escondido SR-78/I-15 Interchange	Escondido Transit Center	Mira Mesa
<b>Wetlands</b>	None	- RI at Murrieta Creek	None	None	None
	●	●	●	●	●
<b>Threatened and Endangered Species Impacts</b>	<ul style="list-style-type: none"> <li>Potential impacts on Stephen's Kangaroo Rat</li> <li>Constraint Level = Low/Moderate</li> </ul>	<ul style="list-style-type: none"> <li>Potential impacts on Stephen's Kangaroo Rat</li> <li>Constraint Level = Low/Moderate</li> </ul>	<ul style="list-style-type: none"> <li>No potential impacts</li> <li>Constraint Level = Low</li> </ul>	<ul style="list-style-type: none"> <li>No potential impacts</li> <li>Constraint Level = Low</li> </ul>	<ul style="list-style-type: none"> <li>Potential California gnatcatcher habitat and other T and E species associated with Coastal Sage Scrub habitat.</li> <li>High impacts if T and E species present.</li> <li>Constraint Level = Moderate/High</li> </ul>
	●	●	●	●	●
<i>Minimize Impacts on Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>	Low-Mod Area: N High Minority: Y Both LM/Minority: N	Low-Mod Area: N High Minority: Y Both LM/Minority: N	None anticipated.	None anticipated from the station site, but there could be some associated with the route through Escondido	None anticipated.
	●	●	●	●	●
<b>Farmland Impacts</b>	None	None	None	None	None
	●	●	●	●	●
<i>Minimize Impacts on Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>	None	None	None	None	None
	●	●	●	●	●
<b>Parks and Recreation/Wildlife Refuge Impacts</b>	No impacts	No impacts	None	None	None
	●	●	●	●	●

Evaluation Criteria		Station Options			
	Murrieta, I-15/I-215 Interchange	Temecula/Murrieta Border	Escondido SR-78/I-15 Interchange	Escondido Transit Center	Mira Mesa
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>	<ul style="list-style-type: none"> <li>• Soils consist of alluvium and older lake deposits</li> <li>• Slope with a 2:1 ratio can be constructed</li> <li>• Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>• Soils consist of alluvium and older lake deposits</li> <li>• Slope with a 2:1 ratio can be constructed</li> <li>• Low to moderate potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>• Soils consist primarily of nonmarine, marine, and terrace deposits</li> <li>• Slope can be constructed with a 2:1 ratio, in general</li> <li>• Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>• Soils and bedrock consist of older lake deposits and granitic rock</li> <li>• Slope can be constructed with a 2:1 ratio, in general. Steeper slope may be feasible</li> <li>• Moderate potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>• Soils consist primarily of nonmarine, marine, and terrace deposits</li> <li>• Slope can be constructed with a 2:1 ratio, in general</li> <li>• Low potential for landslide</li> </ul>
	●	●	●	●	●
<b>Seismic Constraints</b>	<ul style="list-style-type: none"> <li>• Moderate potential for liquefaction</li> <li>• One major fault zone between Paoma Valley (to the north) and Temecula</li> <li>• (to the south) runs through the station:</li> <li>• Elsinore Fault (Type B, MG MAX = 6.8)</li> <li>• Moderate to high potential for surface rupture at the fault location</li> <li>• Detail investigation recommended for the potential impact of the fault on the station</li> </ul>	<ul style="list-style-type: none"> <li>• Low to moderate potential for liquefaction</li> </ul>	<ul style="list-style-type: none"> <li>• Low to moderate potential for liquefaction</li> </ul>	<ul style="list-style-type: none"> <li>• Low to moderate potential for liquefaction</li> </ul>	<ul style="list-style-type: none"> <li>• Low to moderate potential for liquefaction</li> </ul>
	●	●	●	●	●
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>	No sites	No sites	No sites	No sites	No sites
	●	●	●	●	●

○ ● ● ● ●  
Least Favorable Most Favorable

**Table 2-H-19 continued**  
**Los Angeles to San Diego via Inland Empire High-Speed Train Station Evaluation Matrix**  
**Kearny Mesa to Qualcomm Stadium**

**Station** = Station Carried Forward

**Station** = Station Eliminated

**Station** = Primary or Secondary Reason for Elimination

Evaluation Criteria	Station Options <sup>1</sup>	
	Kearny Mesa near Montgomery Field	Qualcomm Stadium
<b>Travel Time</b>	Not Applicable	Not Applicable
<b>Length</b>	Not Applicable	Not Applicable
<b>Population / Employment Catchment</b>	1.2 million	1.2 million
	●	●
<i>Maximize Connectivity and Accessibility.</i>		
<b>Intermodal Connection</b>	The site has direct access to Convoy St., Kearny Mesa Road, and Linda Vista Road. Access to the freeway system is within one mile. The site could be served by bus. Montgomery Field is less than 1 mile away. However, the nearest rail access is 3.6 miles away, near I-5.	The site has direct access to Friars Road, San Diego Mission Road, and Mission Village Dr. Access to I-15 is 0.25-mile away. The site is served by the Trolley, and by bus. Montgomery Field is within 3 miles.
	●	●
<i>Minimize Operating and Capital Costs.</i>		
<b>Length</b>	Not Applicable	Not Applicable
<b>Operational Issues</b>	Not Applicable	Not Applicable

<sup>1</sup> Other station options at University Towne Centre, University City, San Diego Airport, and downtown San Diego are addressed in the Los Angeles to San Diego via Coast (LOSSAN) region.

Evaluation Criteria	Station Options <sup>1</sup>	
	Kearny Mesa near Montgomery Field	Qualcomm Stadium
<b>Construction Issues</b>	Not Applicable	Not Applicable
<b>Capital Cost</b>	Suburban Station	Terminal Station
<b>Right-of-Way Issues/Cost</b>	Not Applicable	Not Applicable
<i>Maximize Compatibility with Existing and Planned Development.</i>		
<b>Land Use Compatibility and Conflicts</b>	The site would result in removal of 0.25 mile of commercial/ industrial uses, including 2 office buildings. With underground station location, potential conflicts with Convoy St. and transmission line along I-805 would be minimized.	The proposed site would result in a loss of parking at Qualcomm Stadium, and also re-move a commercial office building from the south side of San Diego River. The later could be mitigated by moving the site 0.1 mile north. Loss of parking could be mitigated by parking structures. The site could also conflict with the existing Trolley line unless carefully sited
	●	●
<b>Visual Quality Impacts</b>	Large scale environment No historical significance High compatibility	Large scale environment No historical significance High compatibility
	●	●
<i>Minimize Impacts on Natural Resources.</i>		
<b>Water Resources</b>	SEE DISCUSSION IN ALIGNMENT TABLES (Mira Mesa–San Diego)	
	●	●
<b>Floodplain Impacts</b>	SEE DISCUSSION IN ALIGNMENT TABLES (Mira Mesa–San Diego)	
	●	●

Evaluation Criteria	Station Options <sup>1</sup>	
	Kearny Mesa near Montgomery Field	Qualcomm Stadium
<b>Wetlands</b>	None	None
	●	●
<b>Threatened and Endangered Species Impacts</b>	No or very low potential for habitat. Constraint Level = Low	Possible T and E species habitat impacts associated with Murphy Canyon Constraint Level = Low/Moderate
	●	●
<i>Minimize Impacts on Social and Economic Resources.</i>		
<b>Environmental Justice Impacts (Demographics)</b>	None anticipated.	None anticipated
	●	●
<b>Farmland Impacts</b>	None	None
	●	●
<i>Minimize Impacts on Cultural Resources.</i>		
<b>Cultural Resources Impacts</b>	None	None
	●	●
<b>Parks and Recreation/Wildlife Refuge Impacts</b>	None	None
	●	●
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints</i>		
<b>Soils/Slope Constraints</b>	<ul style="list-style-type: none"> <li>• Soils consist primarily of non-marine, marine, and terrace deposits</li> <li>• Slope can be constructed with a 2:1 ratio, in general</li> <li>• Low potential for landslide</li> </ul>	<ul style="list-style-type: none"> <li>• Soils consist primarily of non-marine, marine, and terrace deposits</li> <li>• Slope can be constructed with a 2:1 ratio, in general</li> <li>• Low potential for landslide</li> </ul>
	●	●
<b>Seismic Constraints</b>	Low to moderate potential for liquefaction	Low to moderate potential for liquefaction
	●	●

Evaluation Criteria	Station Options <sup>1</sup>	
	Kearny Mesa near Montgomery Field	Qualcomm Stadium
<i>Maximize Avoidance of Areas with Potential Hazardous Materials</i>		
<b>Hazardous Materials/Waste Constraints</b>	<b>No sites</b>	<b>No sites</b>
	●	●
















○    ◐    ◑    ●  
Least Favorable                      Most Favorable

**Table 2-H-20**  
**Los Angeles to San Diego via Orange County – High-Speed Train Alignment Evaluation Matrix**  
**Segment A – LA Union Station to LAX<sup>1</sup>**










**Alignment** = Alignment Carried Forward
















**Alignment** = Alignment Eliminated






















**Alignment** = Primary or Secondary Reason for Elimination










Evaluation Criteria	Interstate 405 and Interstate 10	MTA Harbor Subdivision	Interstate 105 and Interstate 110
<b>Travel Time</b> (Exp. = Express)	(Exp.) LA Union Station to: LAX – 18.2 min	(Exp.) LA Union Station to: LAX – 14.4 min	(Exp.) LA Union Station to: LAX – 17.0 min
			
<b>Length</b>	23.2 miles (37.3 km)	15.8 miles (25.4 km)	20.6 miles (33.2 km)
			
<b>Population &amp; Employment Catchment</b>	See LAX and LA Union Station	See LAX and LA Union Station	See LAX and LA Union Station
			
<b>Intermodal Connections</b>	See LAX and LA Union Station	See LAX and LA Union Station	See LAX and LA Union Station
			
<b>Length</b>	23.2 miles (37.3 km)	15.8 miles (25.4 km)	20.6 miles (33.2 km)
			

<sup>1</sup> Alignment Option A4 is not listed in this alignment evaluation matrix

Evaluation Criteria	Interstate 405 and Interstate 10	MTA Harbor Subdivision	Interstate 105 and Interstate 110
<b>Operational Issues</b>	<p>There are several curves along this alignment that restrict speed to 50 mph (80 km/h) and lengthen the overall trip times. This alignment has the longest distance and longest simulated trip times of this segment.</p> <p>Dedicated alignment along I-10 and I-405.</p>	<p>Dedicated alignment on MTA Harbor Subdivision, an existing rail line.</p> <p>This alignment has the shortest distance and shortest trip times of this segment. There are no curves tight enough to restrict speeds to 50 mph (80 km/h). However, there are curves that restrict speed to 75 mph (120 km/h).</p>	<p>This alignment is similar to Option A1, but is a shorter length and therefore shorter travel time.</p> <p>Dedicated alignment on I-110 and I-105.</p>
			
<b>Construction Issues</b>	<p>General freeway alignment issues include room for columns, high aerial structures to pass over arterial highways and freeways, and staging of construction.</p> <p>Third/fourth level aerial construction along I-10 and I-405, due to elevated freeway segments and complex freeway/arterial interchanges.</p> <p>Potential physical conflict within LAX Expressway (elevated bypass), being studied for the median of I-405, from SR-90 to Century Boulevard</p> <p>Potential conflict with proposed maglev system along nearly 100% of the same alignment from LA Union Station to LAX.</p>	<p>Dedicated alignment may not be possible on west side of LA River, given existing/proposed Amtrak and Metrolink route to LA Union Station</p> <p>System is aerial to cross Alameda Corridor (freight) and MTA Blue Line in east, I-405 in west.</p> <p>Due to numerous crossing streets, trench assumed alongside Slauson and Florence Avenues, with two crossings closed.</p>	<p>General issues related to construction in a freeway alignment.</p> <p>Third/fourth level aerial construction along I-10, I-110 and I-105, due to elevated freeway segments and existing arterial overcrossings</p> <p>I-110 has an aerial viaduct with HOV lanes in the median, I-105 has MTA Green Line in the median.</p>
			
<b>Capital Cost</b>	Very High Cost	High Cost	Very High Cost
			

Evaluation Criteria	Interstate 405 and Interstate 10	MTA Harbor Subdivision	Interstate 105 and Interstate 110
<b>Right-of-Way Issues/Cost</b>	Very limited right-of-way available adjacent to freeways, median is also constrained	MTA owns the right-of-way, and may convert it for light rail or shared-use commuter rail and freight. Also, right-of-way is single track and parts may be too narrow.	Very limited right-of-way available adjacent to freeways, median also constrained
			
<b>Land Use Compatibility and Conflicts</b>	Low- to medium-density residential with mixture of commercial and industrial uses. Parks, schools, and jail located adjacent to corridor.	Land uses similar to Option A1.	Low- to medium-density residential and commercial. Parks, schools, colleges and Hawthorne municipal airport is located adjacent to corridor.
			
<b>Visual Quality Impacts</b>	High aerial structure added to existing freeway alignments.  Visual impacts to and from heavy urbanized areas of suburban and downtown Los Angeles. Few areas of open space and natural vegetation along corridor.	Impacts along half of this alignment are mitigated by a trench, otherwise visual impacts are the same as described in Option A1.	Visual impacts are the same type described in Option A1.
			
<b>Wetland Impacts</b>	Wetland areas known to occur within this option are the LA River, Ballona Creek, and Centinela Creeks.	1 Wetland area is known to occur within this option; the LA River.	Wetland areas known to occur within this option are the LA River and Dominguez Creeks.
Sites/Area	0/0	0/0	0/0
			
<b>Water Resources</b>	There are 3 water resource crossings. (150 linear ft)	There is 1 water resource crossing. (50 linear ft)	There are 2 water resource crossings. (100 linear ft)
			

Evaluation Criteria	Interstate 405 and Interstate 10	MTA Harbor Subdivision	Interstate 105 and Interstate 110
<b>Floodplain Impacts</b>	No floodplain impacts. 	Floodplain adjacent to rail line within the City of Los Angeles. 	No floodplain impacts. 
<b>Threatened &amp; Endangered Species Impacts</b>	There is 1 endangered, 1 threatened, and 1 species of special concern located within this option. 	There is 1 endangered and 2 species of special concern located within this option. 	There is 1 endangered species located within this option. 
<b>Environmental Justice Impacts (Demographics)</b>	Potential impacts to minority population of approximately 105,000 people within this alignment option. Also potential impacts to approximately 540 low-income households within this alignment option. 	Potential impacts to minority population of approximately 43,000 people within this alignment option. Also potential impacts to approximately 609 low-income households within this alignment option. 	Potential impacts to minority population of approximately 154,000 people within this alignment option. Also potential impacts to approximately 900 low-income households within this alignment option. 
<b>Community and Neighborhood Impacts</b>	There are impacts to 7 communities and neighborhoods within this alignment option. 	There are impacts to 7 communities and neighborhoods within this alignment option. 	There are impacts to 6 communities and neighborhoods within this alignment option. 
<b>Farmland Impacts</b>	No farmland impacts. 	No farmland impacts. 	No farmland impacts. 
<b>Cultural Resources Impacts</b>	4 sites of cultural or historic significance occur adjacent to this alignment option. 	Several known sites of cultural or historic significance occur adjacent to this alignment option. 	Several known sites of cultural or historic significance occur adjacent to this alignment option. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	There are 8 Parks and Recreation/Wildlife Refuge resources. 	There are 3 Parks and Recreation/Wildlife Refuge resources. 	There are 3 Parks and Recreation/Wildlife Refuge resources. 

Evaluation Criteria	Interstate 405 and Interstate 10	MTA Harbor Subdivision	Interstate 105 and Interstate 110
<b>Soils/Slope Constraints</b>	There are 3 distinct soil types. Possible impacts from liquefaction and landslide occur along I-10 and I-405 near I-10 intersection. Potential earthquake induced landslides near LA Union Station.	Soils types are the same as described in Option A1. Potential hazard of liquefaction in area east of I-110. Some localized areas of potential earthquake induced landslides are the same as described in alignment Option A1.	Soils types are the same as described in Option A1. Potential for liquefaction along I-110 corridor south of Vernon Street. No potential impacts from liquefaction occur along I-105 corridor.
			
<b>Seismic Constraints</b>	Potential impacts from 3 major seismic areas and faults occur within this alignment option. No faults are crossed by this alignment.	Seismic areas and faults along this alignment option are the same as Option A1.	Seismic areas and faults along this alignment option are the same as Option A1.
			
<b>Hazardous Materials/Waste Constraints</b>	Several known hazardous waste sites occur along I-405 and I-10. A large concentration of sites is in close proximity to LA Union Station and the LOSSAN corridor.	Numerous hazardous waste sites located adjacent to alignment. Greatest concentration of sites located in the vicinity of the Alameda Corridor.	Several hazardous waste sites occur along I-105 corridor. No known sites along I-110 corridor. Numerous sites located along I-10 corridor with greatest concentration in proximity to LA Union Station.
			







Highly Unfavorable      Highly Favorable











**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Alignment Evaluation Matrix**  
**Segment B – LA Union Station to Orange County**





















**Alignment** = Alignment Carried Forward































**Alignment** = Alignment Eliminated


























**Alignment** = Primary or Secondary Reason for Elimination






Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	Pacific Electric Right-of-Way	UPRR Santa Ana Branch Line
<i>Maximize Ridership/Revenue Potential.</i>					
<b>Travel Time</b>  (Exp. = Express)	(Local) LA Union Station to: Norwalk – 11.7 min Fullerton – 19.4 min Anaheim – 25.4	(Local) LA Union Station to: Norwalk – 11.1 min Anaheim – 21.7 min	(Local) LA Union Station to: Norwalk – 11.8 min Anaheim – 22.1 min	(Local) LA Union Station to: Paramount – 9.6 min Garden Grove – 19.2 min	(Local) LA Union Station to: Norwalk – 11.4 min Anaheim – 20.9 min
	(Exp.) LA Union Station to: Anaheim – 19.4 min	(Exp.) LA Union Station to: Anaheim – 18.3 min	(Exp.) LA Union Station to: Anaheim – 19.0 min	(Exp.) LA Union Station to: Garden Grove – 16.4 min	(Exp.) LA Union Station to: Anaheim – 17.1 min
<b>Length</b>	30.0 miles (48.3 km)	30.0 miles (48.3 km)	28.3 miles (45.5 km)	28.69 miles (46.18 km)	28.67 miles (46.15 km)
<b>Population &amp; Employment Catchment</b>	See LA Union Station, Norwalk, and Anaheim	See LA Union Station, Norwalk, and Anaheim	See LA Union Station, Norwalk, and Anaheim	See LA Union Station, Paramount, and Garden Grove	See LA Union Station, Norwalk, and Anaheim
<i>Maximize Connectivity and Accessibility.</i>					
<b>Intermodal Connections</b>	See LA Union Station, Norwalk, and Anaheim	See LA Union Station, Norwalk, and Anaheim	See LA Union Station, Norwalk, and Anaheim	See LA Union Station, Paramount, and Garden Grove	See LA Union Station, Norwalk, and Anaheim
<i>Minimize Operating and Capital Costs.</i>					
<b>Length</b>	30.0 miles (48.3 km)	30.0 miles (48.3 km)	28.3 miles (45.5 km)	28.69 miles (46.18 km)	28.67 miles (46.15 km)

<b>Evaluation Criteria</b>	<b>LOSSAN Corridor – low-end improvements (Conventional only)</b>	<b>LOSSAN Corridor – high-end improvements</b>	<b>Interstate 5 Freeway</b>	<b>Pacific Electric Right-of-Way</b>	<b>UPRR Santa Ana Branch Line</b>
<b>Operational Issues</b>	<p>Shared-use alignment, with delays from other rail traffic.</p> <p>This alignment has longest distance of this segment. The curves are moderate and simulated trip times are in the mid-range. There are several curves restraining speed to 75 mph (120 km/h).</p>	<p>There are no differences in trip time simulations between the 3-track Option B1a and the 4-track Option B1b.</p> <p>The complete fourth main track allows some segregation of passenger and freight, which adds operational flexibility and trip time reliability, compared with Option B1a.</p>	<p>Follows a freeway and has the most restrictive speed constraints and the largest simulated trip times for this segment. There are three curves limiting speed to 50 mph (80 km/h), and many other curves limiting speed to 75 mph (120 km/h).</p> <p>Dedicated VHS alignment.</p>	<p>This distance of this alignment is in the middle range for this segment. It has only one curve that restricts speed to 50 mph (80 km/h), and the simulated trip times are the shortest of this segment.</p> <p>Dedicated VHS alignment</p>	<p>This distance of this alignment is in the middle range for this segment. It has few speed constraints and short simulated trip times. There are several curves limiting the speed to 75 mph (120 km/h).</p> <p>Dedicated VHS alignment.</p>
					
<b>Construction Issues</b>	<p>Some track construction from LA to Commerce and in Fullerton. Some additional grade-separations proposed – No major issues</p>	<p>Fourth Main track added in corridor along entire length from LA to Fullerton, numerous grade-separations of streets required in Anaheim - No major issues, but more complex than Option B1a.</p>	<p>General issues related to construction within a freeway alignment (See Option A1). Third level aerial construction along significant portion of I-5 due to existing arterial and railway over crossings</p> <p>Widening of I-5 has been studied in LA County (See right-of-way issues), and may complicate construction of VHS further.</p> <p>Follow UP right-of-way south of Beach Boulevard to Euclid, and thereafter, frontage road to Anaheim – avoids HOV structures in the median - this part of the alignment has fewer issues than LA County.</p>	<p>Grade-separated system in existing/former rail alignments, either aerial (industrial areas) or trench (residential areas) due to numerous existing grade crossings in LA County and Buena Park.</p> <p>Possible to cross LA River (South Gate), Rio Hondo and Coyote Creek at existing profile (two road closures needed), but tunnel under San Gabriel River required to retain trench profile in nearby residential areas.</p> <p>Two channel crossings in OC would require reconstruction due to the trench profile.</p>	<p>Grade-separated system on existing rail alignment, either aerial (industrial areas) or trench (residential areas) due to numerous existing grade crossings in LA County and Buena Park.</p> <p>Possible to cross LA River (South Gate), Rio Hondo and San Gabriel River at existing profile, with transitions to/from trench on approaches</p> <p>Existing profile from Beach to Euclid is grade-separated due to recent construction along I-5, at-grade construction appears feasible.</p>
					

<b>Evaluation Criteria</b>	<b>LOSSAN Corridor – low-end improvements (Conventional only)</b>	<b>LOSSAN Corridor – high-end improvements</b>	<b>Interstate 5 Freeway</b>	<b>Pacific Electric Right-of-Way</b>	<b>UPRR Santa Ana Branch Line</b>
<b>Capital Cost</b>	Least Cost 	Moderate Cost 	High Cost 	Highest Cost 	High Cost 
<b>Right-of-Way Issues/Cost</b>	Some right-of-way for additional tracks. Fewest issues for Segment B. 	Some widening of rail right-of-way required – most adjacent property is industrial. More widening than Option B1a. 	Limited Right of Way in freeway corridor. Some property available for columns between existing freeway and frontage roads, in LA County. UP owns and operates the Santa Ana Branch, used by freight traffic. 	San Pedro Branch is an existing freight line, owned by BNSF PE right-of-way is owned by MTA and by OCTA, lightly used by freight and intended for future transit facility. 	San Pedro Branch is an existing freight line, owned by BNSF UP owns and operates the Santa Ana Branch, used by freight traffic. 
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>	Low- to medium-density residential with mixture of commercial and industrial uses and open space. Some parks and schools located along the alignment option. 	Low- to medium-density residential with mixture of commercial and industrial uses and open space. Some parks and schools located along the alignment option. 	Low- to medium-density residential with mixture of commercial and industrial uses. Some parks, schools, cemeteries, and a hospital located along the alignment option. 	Land uses for this alignment option are the same as described in Alignment Option B1a, B1b, and B2. 	Land uses for this alignment option are the same as described in Alignment Option B1a, B1b, and B2. 
<b>Visual Quality Impacts</b>	Widening of an existing rail alignment in industrial and some residential areas. Less heavy visual impacts as corridor transitions into Orange County. However visual impacts remain residential, commercial, and transportation/utility development. 	Visual impacts are similar to Option B1a, but more widening would occur in the same area. 	Land Uses are similar to Option B1a, but impacts would be greater as this option adds a high aerial structure to the freeway alignment. 	Overall mix of land uses similar to Option B1a, but would add a new transportation facility to the alignment, mitigated by a proposed trench. 	Visual impacts would be similar to Option B2. 

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	Pacific Electric Right-of-Way	UPRR Santa Ana Branch Line
<i>Minimize Impacts to Natural Resources.</i>					
<b>Wetland Impacts</b>	Wetland areas known to occur within this segment are the Los Angeles, Rio Hondo, San Gabriel, and Santa Ana Rivers, the North Fork Coyote, Coyote, Fullerton, Carbon Creeks, and Crescent Basin.	Wetland areas known to occur within this segment are the Los Angeles, Rio Hondo, San Gabriel, and Santa Ana Rivers, the North Fork Coyote, Coyote, Fullerton, Carbon Creeks, and Crescent Basin.	Wetland areas known to occur within this segment are the Los Angeles, Rio Hondo, San Gabriel, and Santa Ana Rivers, the North Fork Coyote, Coyote, Fullerton, Carbon Creeks, and Crescent Basin.	Wetland areas known to occur within this segment are the Los Angeles, Rio Hondo, and San Gabriel Rivers, and Coyote and Moody Creeks.	Wetland areas known to occur within this segment are the Los Angeles, Rio Hondo, San Gabriel, and Santa Ana Rivers, the North Fork Coyote, Coyote, Fullerton, Carbon Creeks, and Crescent Basin.
Sites/Area	0/0	0/0	0/0	1/0.5 ac	0/0
					
<b>Water Resources</b>	Impacts to 9 water resources. (450 linear ft)	Impacts to 3 water resources. (150 linear ft)	Impacts to 3 water resources. (150 linear ft)	Impacts to 8 water resources. (400 linear ft)	Impacts to 8 water resources. (400 linear ft)
					
<b>Floodplain Impacts</b>	Crosses 4 floodplains	Crosses 4 floodplains	Crosses 1 floodplains	Crosses 1 floodplains	No floodplain impacts.
					
<b>Threatened &amp; Endangered Species Impacts</b>	There is 1 specie of special concern located within this option.	There is 1 specie of special concern located within this option.	There are 2 species of special concern located within this option.	There are 3 endangered, 1 threatened, and 4 species of special concern located within this option.	There are 2 species of special concern located within this option.
					
<i>Minimize Impacts to Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>	Potential impacts to a minority population of approximately 40,000 people and potential impacts to approximately 395 low-income households.	Potential impacts to a minority population of approximately 40,000 people and potential impacts to approximately 395 low-income households.	Potential impacts to a minority population of approximately 78,000 people and potential impacts to approximately 709 low-income households.	Potential impacts to a minority population of approximately 89,000 people and potential impacts to approximately 415 low-income households.	Potential impacts to a minority population of approximately 62,000 people and potential impacts to approximately 415 low-income households.
					
<b>Community &amp; Neighborhood Impacts</b>	There are impacts to 12 communities and neighborhoods that occur within this alignment option.	There are impacts to 12 communities and neighborhoods that occur within this alignment option.	There are impacts to 11 communities and neighborhoods that occur within this alignment option.	There are impacts to 21 communities and neighborhoods that occur within this alignment option.	There are impacts to 10 communities and neighborhoods that occur within this alignment option.
					

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	Pacific Electric Right-of-Way	UPRR Santa Ana Branch Line
<b>Farmland Impacts</b>	There is 1 parcel of prime farmland located within Orange County. 	There is 1 parcel of prime farmland located within Orange County. 	There are 2 parcels of prime farmland located within Orange County. 	No farmland impacts. 	No farmland impacts. 
<i>Minimize Impacts to Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>	There are several sites of cultural or historic significance that occur adjacent to this alignment option. 	There are several sites of cultural or historic significance that occur adjacent to this alignment option. 	There are two sites of cultural or historic significance that occur adjacent to this alignment option. 	No known sites of cultural or historic significance. 	No known sites of cultural or historic significance. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	There are 4 Parks and Recreation/Wildlife Refuge resources. 	There are 4 Parks and Recreation/Wildlife Refuge resources. 	There are 10 Parks and Recreation/Wildlife Refuge resources. 	There are 9 Parks and Recreation/Wildlife Refuge resources. 	There are 6 Parks and Recreation/Wildlife Refuge resources. 
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>	2 distinct soil types occur along this alignment option. Some localized areas of earthquake induced landslides. 	Soil and Slope Constraints are similar to Option B1a. 	Soil and Slope Constraints are similar to Option B1a. 	Soil and Slope Constraints are similar to Option B1a. 	Soil and Slope Constraints are similar to Option B1a. 
<b>Seismic Constraints</b>	Potential impacts from 2 major seismic areas and faults. No faults are crossed. 	Seismic Constraints are similar to Option B1a. 	Seismic Constraints are similar to Option B1a. 	Seismic Constraints are similar to Option B1a. The Newport/Inglewood Fault is close to this alignment along the PE right-of-way. 	Seismic Constraints are similar to Option B1a. 

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	Pacific Electric Right-of-Way	UPRR Santa Ana Branch Line
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>	Several hazardous waste sites located adjacent to corridor. Greatest concentration of sites located in the cities of Fullerton and Santa Fe Springs.	Several hazardous waste sites located adjacent to corridor. Greatest concentration of sites located in the cities of Fullerton and Santa Fe Springs.	Several hazardous waste sites located adjacent to corridor. Greatest concentration of sites located in the cities of Norwalk and La Mirada.	Several hazardous waste sites located adjacent to corridor, but the fewest sites in total compared to the other alignment options within Segment B. The concentration of sites is located in the northern portion of the City of Downey.	Several hazardous waste sites located adjacent to corridor, but the fewest sites in total compared to the other alignment options within Segment B. The concentration of sites is located in the northern portion of the City of Downey.
					










































Highly Unfavorable      Highly Favorable





















**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Alignment Evaluation Matrix**  
**Segment C – Orange County to Oceanside**





















Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<i>Maximize Ridership/Revenue Potential.</i>					
<b>Travel Time</b>  (Exp. = Express)	(Local) Anaheim to: Santa Ana – 6.6 min ITC – 14.7 min San Juan Cap. – 23.9 min OTC – 43.6 min	(Local) Anaheim to: ITC – 11.2 min OTC – 38.5 min	(Local) Anaheim to: Irvine – 9 min Oceanside – 35.9 min	(Local) Garden Grove to: Newport Bch – 9.4 min Oceanside – 37.5 min	(Local) Anaheim to: Irvine – 8.9 min Oceanside – 39.8 min
	(Exp.) Anaheim to: OTC – 33.9 min	(Exp.) Anaheim to: OTC – 32.1 min	(Exp.) Anaheim to: Oceanside – 33.7 min	(Exp.) Garden Grove to: Oceanside – 34.5 min	(Exp.) Anaheim to: Oceanside – 36.6 min
					
<b>Length</b>	55.5 miles (89.3 km)	56.1 miles (90.3 km)	55.1 miles (88.6 km)	57.6 miles (92.7 km)	60.6 miles (97.5 km)
					
<b>Population &amp; Employment Catchment</b>	See Irvine and Oceanside Station options	See Irvine and Oceanside Station options 9	See Irvine and Oceanside Station options	See Newport Beach and Oceanside Station options	See Irvine and Oceanside Station options
					
<i>Maximize Connectivity and Accessibility.</i>					
<b>Intermodal Connections</b>	See Irvine and Oceanside Station options	See Irvine and Oceanside Station options	See Irvine and Oceanside Station options	See Newport Beach and Oceanside Station options	See Irvine and Oceanside Station options
					
<i>Minimize Operating and Capital Costs.</i>					
<b>Length</b>	55.5 miles (89.3 km)	56.1 miles (90.3 km)	55.1 miles (88.6 km)	57.6 miles (92.7 km)	60.6 miles (97.5 km)
					






Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<b>Operational Issues</b>	<p>Shared-use alignment, subject to delays from other rail traffic.</p> <p>The alignment is of medium length. It contains three curves with 50 mph (80 km/h) speed restrictions, and many 75 mph (120 km/h) speed restrictions.</p>	<p>Shared-use alignment, subject to delays from other rail traffic.</p> <p>Tunnels under Orange and Dana Point require 2% (approx.) transitions to/from grade, which slows freight operation in the corridor</p> <p>Bypasses in southern part of alignment avoid speed restrictions and reduced simulated trip time.</p>	<p>The length of this alignment is about the same as alignment Option C1B. It has one 50 mph (80 km/h) speed restriction and several 75 mph (120 km/h) speed restrictions.</p> <p>Dedicated VHS alignment</p>	<p>This alignment has the shortest simulated trip time. There are no 50 mph (80 km/h) speed restrictions. However, there are many 75 mph (120 km/h) speed restrictions.</p> <p>Dedicated VHS alignment</p>	<p>This option has the longest distance and the second longest trip times.</p> <p>Due to moderately steep grades, this option would only be suitable for dedicated VHS or maglev operation.</p> <p>Dedicated VHS alignment</p>
					
<b>Construction Issues</b>	<p>Most of this alignment is unaffected, or has double tracking.</p> <p>The tunnel under San Juan Capistrano is challenging due to the narrow alignment, proximity to historic station, and nearby water crossings.</p> <p>Beach access issues at grade separations in San Clemente.</p>	<p>Similar to Option C1a, but with more tunnels.</p> <p>Tunnels are required under Orange and Dana Point to allow curve straightening. Tunnel in Orange affects the existing Metrolink station.</p> <p>Tunnel under I-5 in San Clemente, from Pico to Christianitos, due to rolling profile of freeway</p>	<p>General freeway construction issues (Option A1).</p> <p>Third level aerial construction along I-5 from Santa Ana River to SR-55, due to numerous overcrossings – HOV lane structures in the median may require rail system to straddle part of the freeway. Also at other freeway interchanges and in Oceanside.</p> <p>Tunnel under I-5 in San Clemente, from Las Ramblas to Christianitos, due to rolling profile of freeway.</p>	<p>General freeway construction issues (Option A1).</p> <p>SARC section highly constrained by flood control channel, power lines, &amp; utility trunk lines.</p> <p>System must be in trench to pass beneath John Wayne Airport glide path</p> <p>Two long tunnel segments required under SR-73 alignment, due to sustained 6% grades in San Joaquin Hills</p> <p>Same as Option C2 from San Juan Capistrano to Oceanside.</p>	<p>General freeway construction issues (Option A1).</p> <p>Tunnel just north of Arroyo Trabuco due to steep grades.</p> <p>From Oso Parkway to I-5 (San Onofre) the corridor is one of several proposals being studied as an extension for SR-241, if highway is not built, then substantial earthwork required for this option.</p> <p>Same as Option C2 from Anaheim to Irvine and from San Onofre to Oceanside.</p>
					

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<b>Capital Cost</b>	Least Cost	Moderate Cost	Very High Cost	Highest Cost	Very High Cost
<b>Right-of-Way Issues/Cost</b>	Existing LOSSAN corridor, some widening required but new alignment is mostly in covered trench	Existing LOSSAN Corridor, some widening, other segments are trench or tunnel bypasses	Most of the freeway alignment from Anaheim to San Onofre is constrained  Through Camp Pendleton, all land adjacent to I-5 could be subject to approval by the Department of the Navy.	Highly constrained along SARC and I-405.  SR-73/I-5 alignments from Aliso Viejo to San Onofre are constrained.  Through Camp Pendleton, all land adjacent to I-5 could be subject to approval by the Department of the Navy.	Freeway median constrained on I-5 through Santa Ana, Tustin, and Irvine.  Open land on much of SR-241, south of Oso Parkway.  Through Camp Pendleton, all land adjacent to I-5 could be subject to approval by the Department of the Navy.
<i>Maximize Compatibility with Existing and Planned Development.</i>					
<b>Land Use Compatibility and Conflicts</b>	Low to medium density residential with mixture of commercial, industrial, and open space. Anaheim stadium, some parks, two military bases and San Juan Capistrano Mission and Historic Town Center Park is located along the alignment option.	Low to medium density residential with mixture of commercial, industrial, and open space. Anaheim stadium, some parks, two military bases and San Juan Capistrano Mission and Historic Town Center Park is located along the alignment option.	Low to medium density residential with mixture of commercial, industrial, and open space. Anaheim stadium, Disneyland theme park, city parks, two military bases and San Juan Capistrano Mission and Historic Town Center Park is located near the alignment option.	Land Uses are generally the same as described in Alignment Option C1a with the addition of John Wayne airport and large segments of open space along the corridor. South of the SR-73/I-5 interchange, land uses are the same as Option C2.	The alignment option transverses large agricultural lands and open space with large tracts of residential developments occurring along the corridor. There is also the San Onofre nuclear power plant and Camp Pendleton U.S. Marine Corps base.

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<b>Visual Quality Impacts</b>	Option is an existing alignment, at or below grade. Visual impacts vary from heavy urbanized areas of central Orange County to residential, open space, and farmland of southern Orange County. Views south of the Orange/San Diego County line is dominated by the Pacific Ocean to the West.  Views in the vicinity of Camp Pendleton are of rolling hills of natural vegetation.	Visual impacts are similar to Option C1a.  Bypasses are mostly in tunnel, reducing impact, but electrification has more impact in other locations.	Visual impacts are similar to Option C1a.  New aerial structure added to I-5 alignment from Anaheim to Dana Point, and in Oceanside.	Introduction of aerial structure into freeway and full highway alignments, except at-grade in Camp Pendleton.  Visual impacts along the Santa Ana River include riparian and natural wildlife habitat, and areas of residential and commercial adjacent to the River. The views from I-405 are of office and commercial development. Views from SR-73 are a mixture of residential and undeveloped open space.  Some impacts mitigated by tunnels.	Introduction of aerial structure into freeway and full highway alignments, except at-grade in Camp Pendleton.  Visual impacts from SR-241 are a mixture of residential and office/commercial developments. As the alignment transitions to the south, the view become less residential and more undeveloped open space and rolling hills of natural vegetation.
<i>Minimize Impacts to Natural Resources.</i>					
<b>Wetland Impacts</b>	Wetland areas known to occur within this segment are 3 rivers, 2 washes, and 10 creeks.	Wetland areas known to occur within this segment are 3 rivers, 2 washes, and 10 creeks.	Wetland areas known to occur within this segment are 3 rivers, 1 channel, 2 washes, and 10 creeks.	Wetland areas known to occur within this segment are 3 rivers, 5 channels, 2 washes, and 13 creeks.	Wetland areas known to occur within this segment are 2 rivers, 1 channel, 1 reservoir, 1 lake, 2 washes, and 15 creeks.
Sites/Area	26/10 ac	26/10 ac	21/11.2 ac	22/12.0 ac	20/12.4 ac
<b>Water Resources</b>	Impacts to 22 water resources. (1,100 linear ft)	Impacts to 22 water resources. (1,100 linear ft)	Impacts to 17 water resources. (850 linear ft)	Impacts to 14 water resources. (700 linear ft)	Impacts to 23 water resources. (1,150 linear ft)
<b>Floodplain Impacts</b>	Crosses numerous floodplains.	Crosses numerous floodplains.	Crosses 4 floodplains	Crosses 4 floodplains	Crosses 4 floodplains

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<b>Threatened &amp; Endangered Species Impacts</b>	There are 6 endangered, 2 threatened, and 19 species of special concern located within this option. 	There are 6 endangered, 2 threatened, and 19 species of special concern located within this option. 	There are 6 endangered, 2 threatened, and 19 species of special concern located within this option. 	There is 1 endangered, 2 threatened, and 4 species of special concern located within this option. 	There are 4 endangered, 2 threatened, and 15 species of special concern located within this option. 
<i>Minimize Impacts to Social and Economic Resources.</i>					
<b>Environmental Justice Impacts (Demographics)</b>	Potential impacts to a minority population of approximately 17,275 people. There are no potential impacts to any low-income households. 	Potential impacts to a minority population of approximately 17,275 people. There are no potential impacts to any low-income households. 	Potential impacts to a minority population of approximately 13,700 people. There are no potential impacts to any low-income households. 	There are no potential impacts to any minority population or low-income households. 	Potential impacts to a small minority population of approximately 50 people. There are no potential impacts to any low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	There are impacts to 13 communities and neighborhoods that occur within this alignment option. 	There are impacts to 13 communities and neighborhoods that occur within this alignment option. 	There are impacts to 15 communities and neighborhoods that occur within this alignment option. 	There are impacts to 12 communities and neighborhoods that occur within this alignment option. 	There are impacts to 5 communities and neighborhoods that occur within this alignment option.  Fewest impacts, as much of the alignment is open land. 
<b>Farmland Impacts</b>	There are several parcels of farmland within Orange County. There is 1 parcel of Prime Farmland located within San Diego County. 	There are several parcels of farmland within Orange County. There is 1 parcel of Prime Farmland located within San Diego County. 	There are several parcels of farmland within Orange County. There is 1 parcel of Prime Farmland located within San Diego County. 	There is 1 parcel of Farmland of Statewide Importance located within Orange County in the vicinity of SR-73. 	There are several parcels of farmland within Orange and San Diego County. 

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<i>Minimize Impacts to Cultural Resources.</i>					
<b>Cultural Resources Impacts</b>	There are several sites of cultural or historic significance that occur adjacent to this alignment option.	There are several sites of cultural or historic significance that occur adjacent to this alignment option.	There are several sites of cultural or historic significance that occur adjacent to this alignment option.	2 sites of cultural or historic significance occur along this alignment option.	There are several sites of cultural or historic significance that occur adjacent to this alignment option.  There are no sites in the vicinity of planned segments of SR-241.
					
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	There are 23 Parks and Recreation/ Wildlife Refuge resources that occur within this alignment option.	There are 18 Parks and Recreation/ Wildlife Refuge resources that occur within this alignment option.	There are 2 Parks and Recreation/Wildlife Refuge resources that occur within this alignment option.	There are 7 Parks and Recreation/Wildlife Refuge resources that occur within this alignment option.	There are 2 Parks and Recreation/Wildlife Refuge resources that occur within this alignment option.
					
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>					
<b>Soils/Slope Constraints</b>	There are 9 distinct soil types. The alignment crosses areas with the potential for liquefaction and landslides.	The Soils and Slope Constraints are similar to Option C1a.	The Soils and Slope Constraints are similar to Option C1a.	The Soils and Slope Constraints are similar to Option C1a.	The Soils and Slope Constraints are similar to Option C1a.
					
<b>Seismic Constraints</b>	Potential impacts from 1 major seismic area and fault. No faults are crossed.	The Seismic Constraints are similar to Option C1a.	The Seismic Constraints are similar to Option C1a.	The Seismic Constraints are similar to Option C1a.	The Seismic Constraints are similar to Option C1a.
					

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high-end improvements	Interstate 5 Freeway	San Joaquin Corridor (SR-73) with I-5	Interstate 5 and Foothill Corridor (SR-241)
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>					
<b>Hazardous Materials/Waste Constraints</b>	Several hazardous waste sites located adjacent to corridor. Greatest concentration of sites located in the cities of Tustin and Santa Ana.	Several hazardous waste sites located adjacent to corridor. Greatest concentration of sites located in the cities of Tustin and Santa Ana. There are no known sites south of San Clemente along this alignment option.	Several hazardous waste sites located adjacent to corridor. Greatest concentration of sites located in the cities of Anaheim, Tustin, Irvine, and Mission Viejo. There are no known sites south of Mission Viejo along this alignment option.	No known hazardous waste sites.	No known hazardous waste sites.
					














































Highly Unfavorable      Highly Favorable



















**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Alignment Evaluation Matrix**  
**Segment D – Oceanside to San Diego**













**Alignment** = Alignment Carried Forward      **Alignment** = Alignment Eliminated      **Alignment** = Primary or Secondary Reason for Elimination

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high- end improvements	Interstate 5 Freeway
<i>Maximize Ridership/Revenue Potential.</i>			
<b>Travel Time</b>  (Exp. =Express)	(Local) OTC to: Solana Beach – 10.8 min UTC – 19.4 min Santa Fe Depot – 30.9 min  (Exp.) OTC to: Santa Fe Depot – 24.5 min  	(Local) OTC to: Solana Beach – 10 min Santa Fe Depot – 27.1 min  (Exp.) OTC to: Santa Fe Depot – 23.2 min  	(Local) Oceanside to: Solana Beach – 10.8 min San Diego Airport – 24.3 min  (Exp.) Oceanside to: San Diego Airport – 21.4 min  
<b>Length</b>	37.3 miles (60.0 km)  	35.8 miles (57.7 km)  	33.8 miles (54.5 km)  
<b>Population &amp; Employment Catchment</b>	See Solana Beach and UTC and Santa Fe Station options  	See Solana Beach and Santa Fe Station options  	See Solana Beach and San Diego Airport Station options  
<i>Maximize Connectivity and Accessibility.</i>			
<b>Intermodal Connections</b>	See Solana Beach and UTC and Santa Fe Depot Station options  	See Solana Beach and Santa Fe Depot Station options  	See Solana Beach and San Diego Airport Station options  
<i>Minimize Operating and Capital Costs.</i>			
<b>Length</b>	37.3 miles (60.0 km)  	35.8 miles (57.7 km)  	33.8 miles (54.5 km)  

Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high- end improvements	Interstate 5 Freeway
<b>Operational Issues</b>	<p>This alignment is the longest in this segment and has the longest trip time.</p> <p>Shared-Use, subject to delays from other rail traffic.</p> 	<p>This alignment is shorter and has one 50 mph (80 km/h) speed restriction and several 75-100 mph (120-160 km/h) speed restrictions. The simulated trip time is substantially shorter.</p> <p>Shared-Use, bypasses would reduce delay compared with D1a.</p> 	<p>The alignment characteristics are very similar to the Option D1b with identical simulated trip times. The alignment has many 75 mph (120 km/h) speed restrictions.</p> <p>Dedicated VHS alignment.</p> 
<b>Construction Issues</b>	<p>Completion of double tracking (at-grade) and stabilization and reinforcement at Del Mar Bluffs.</p> <p>Deep tunnel under Miramar Hill from Sorrento Valley to Rose Canyon.</p> 	<p>Grade-separation of double tracked system in coastal cities.</p> <p>Trench construction in cities require transitions to/from grade at each Lagoon crossing. Some Coaster stations would need new platforms if tracks were lowered.</p> <p>Tunnel under Camino Del Mar difficult due to commercial/tourist area and traffic on highway. Second tunnel would follow I-5 alignment from north of Sorrento Valley Coaster to vicinity of Gilman Drive interchange</p> <p>Numerous grade crossings south of San Diego River Channel, trench required in approach to Santa Fe Depot due to airport runway.</p> 	<p>General issues associated with a freeway alignment (See Option A1).</p> <p>Third level structures to clear arterial overpasses and freeway interchanges (SR-58, SR-56, I-805, SR-52, I-8)</p> <p>To avoid tunnel in Miramar Hill segment (road climbs at ~3.3% on north side), the option assumes very high structure above the arterials that crossover I-5.</p> 
<b>Capital Cost</b>	<p>Least Cost</p> 	<p>Very High Cost</p> 	<p>Very High Cost</p> 

<b>Evaluation Criteria</b>	<b>LOSSAN Corridor – low-end improvements (Conventional only)</b>	<b>LOSSAN Corridor – high- end improvements</b>	<b>Interstate 5 Freeway</b>
<b>Right-of-Way Issues/Cost</b>	Existing LOSSAN Corridor, with some widening, except for the new tunnel under UTC. 	Existing LOSSAN Corridor, with some widening, except for the new tunnels at Del Mar and under I-5. 	Highly constrained due to build out of I-5. 
<i>Maximize Compatibility with Existing and Planned Development.</i>			
<b>Land Use Compatibility and Conflicts</b>	Land uses are a mixture of agricultural, residential, and commercial with numerous state beaches, parks, and open space located along this alignment option. 	Land uses are a mixture of agricultural, residential, and commercial with numerous state beaches, parks, and open space located along this alignment option. 	Land uses are the same as described in Option D1a. 
<b>Visual Quality Impacts</b>	Widening of existing rail alignment. Views south of Oceanside are dominated by the Pacific Ocean to the west. There is a mixture of residential, commercial development, farmlands, and open space. In the vicinity of downtown San Diego, the views are of heavy urbanization. 	Visual impacts similar to Option D1a, but impacts mitigated by grade-separation in coastal cities, and by tunnel at Del Mar. 	Visual impacts similar to Option C2, impacts due to high aerial structure on I-5 alignment. 
<i>Minimize Impacts to Natural Resources.</i>			
<b>Wetland Impacts</b>	Wetland areas known to occur within this segment are 1 river, 1 river floodway, 4 lagoons, 5 creeks, and 1 bay.	Wetland areas known to occur within this segment are 1 river, 1 river floodway, 4 lagoons, 5 creeks, and one bay.	Wetland areas known to occur within this segment are 1 river, 1 river floodway, 4 lagoons, 8 creeks, and one bay.
Sites/Area	60/42.9 ac 	40/29.5 ac 	24/10.3 ac 
<b>Water Resources</b>	Impacts to 13 water resources. (650 linear ft) 	Impacts to 13 water resources. (650 linear ft) 	Impacts to 13 water resources. (650 linear ft) 









Evaluation Criteria	LOSSAN Corridor – low-end improvements (Conventional only)	LOSSAN Corridor – high- end improvements	Interstate 5 Freeway
<b>Floodplain Impacts</b>	Crosses several 100-Year floodplains. 	Crosses several 100-Year floodplains. 	Crosses several 100-Year floodplains. 
<b>Threatened &amp; Endangered Species Impacts</b>	There are 8 endangered, 5 threatened, and 24 species of special concern located within this option. 	There are 8 endangered, 5 threatened, and 24 species of special concern located within this option. 	There are 8 endangered, 5 threatened, and 24 species of special concern located within this option. 
<i>Minimize Impacts to Social and Economic Resources.</i>			
<b>Environmental Justice Impacts (Demographics)</b>	Potential impacts to minority population of approximately 5,250 people and potential impacts to approximately 45 low-income households. 	Potential impacts to minority population of approximately 5,250 people and potential impacts to approximately 45 low-income households. 	Potential impacts to minority population of approximately 8,950 people. There are no potential impacts to any low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	There are impacts to 7 communities and neighborhoods within this alignment option. 	There are impacts to 7 communities and neighborhoods within this alignment option. 	There are impacts to 7 communities and neighborhoods within this alignment option. 
<b>Farmland Impacts</b>	There are several parcels farmland located within San Diego County along this alignment option. 	There are several parcels farmland located within San Diego County along this alignment option. 	There are several parcels farmland located within San Diego County along this alignment option. 
<i>Minimize Impacts to Cultural Resources.</i>			
<b>Cultural Resources Impacts</b>	There are several sites of cultural or historic significance that occur adjacent to the alignment including the Carlsbad Village Depot and Old Town San Diego. 	There are several sites of cultural or historic significance that occur adjacent to the alignment including the Carlsbad Village Depot and Old Town San Diego. 	There are several sites of cultural or historic significance that occur adjacent to the alignment including the Carlsbad Village Depot and Old Town San Diego. 















<b>Evaluation Criteria</b>	<b>LOSSAN Corridor – low-end improvements (Conventional only)</b>	<b>LOSSAN Corridor – high- end improvements</b>	<b>Interstate 5 Freeway</b>
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	There are 14 Parks and Recreation/Wildlife Refuge resources that occur within this alignment option. 	There are 12 Parks and Recreation/Wildlife Refuge resources that occur within this alignment option. 	There are 15 Parks and Recreation/Wildlife Refuge resources that occur within this alignment option. 
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>	There are 7 distinct soil types. The potential for liquefaction and landslides along the alignment option in the cities of Del Mar, Solana Beach, and Encinitas. 	The Soils and Slope Constraints are similar to Option D1a. 	The Soils and Slope Constraints are similar to Option D1a. 
<b>Seismic Constraints</b>	Potential impacts from 1 major seismic area and fault occur within this alignment option. 	The Seismic Constraints are similar to Option D1a. 	The Seismic Constraints are similar to Option D1a. 
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>	Several hazardous waste sites located adjacent to corridor. The sites are located in the cities of Oceanside, Carlsbad, Encinitas, and San Diego with the greatest concentration located within San Diego along the alignment. 	Several hazardous waste sites located adjacent to corridor. The sites are located in the cities of Oceanside, Carlsbad, Encinitas, and San Diego with the greatest concentration located within San Diego along this alignment. 	Several hazardous waste sites located adjacent to corridor in the cities of Oceanside and San Diego with the greatest concentration located within Diego along this alignment option. 

**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Station Evaluation Matrix**  
**LA Union Station to LAX**







**Station Name** = Station Carried Forward

**Station Name** = Station Eliminated

Evaluation Criteria	LAX	LA Union Station
<i>Maximize Ridership/Revenue Potential.</i>		
<b>Travel Time</b>	Refer to Options A1-A3 and A5	Refer to Options A1-A3 and B1-B4
<b>Population &amp; Employment Catchment</b>  <i>Data Based on 2020 Forecasts</i>	Population: 3,299,933 persons Employment: 1,837,949 persons  	Population: 4,548,087 persons Employment: 2,021,767 persons  
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• I-405</li> <li>• I-105</li> <li>• Arterials</li> <li>• MTA Buses</li> <li>• Culver City Transit</li> <li>• Santa Monica Big Blue Bus</li> <li>• Torrance Transit</li> </ul> <i>For details refer to Intermodal Connections in Section 4.1.1</i> 	<ul style="list-style-type: none"> <li>• LAX – 12 mi. (19.2 km)</li> <li>• I-110</li> <li>• US-101</li> <li>• Arterials</li> <li>• Amtrak</li> <li>• Amtrak Connection Buses</li> <li>• MTA Buses</li> <li>• LADOT DASH</li> <li>• Foothill Transit</li> <li>• MTA Rail</li> <li>• Metrolink</li> </ul> <i>For details refer to Intermodal Connections in Section 4.1.1</i> 
<i>Minimize Operating and Capital Costs.</i>		
<b>Operational Issues</b>	No operational issues.  	Shared-use with Amtrak, Metrolink, and statewide VHS/Maglev system.  
<b>Construction Issues</b>	Proximity to airport  	<i>Refer to Los Angeles - Bakersfield Screening Evaluation Report.</i>  

Evaluation Criteria	LAX	LA Union Station
<b>Capital Cost</b>	New Terminal station	Existing Station; part of other corridors
		
<b>Right-of-Way Issues/Cost</b>	Limited available land due to airport terminals, parking, flight path restrictions.	Existing station would be enlarged
		
<i>Maximize Compatibility with Existing and Planned Development.</i>		
<b>Land Use Compatibility and Conflicts</b>	Land use is heavy commercial, industrial, and transportation related uses. Residential area to the east of proposed station site, across from I-405.	Land use is common to heavy urbanization of downtown urban centers with a mixture of heavy office space, light industrial, and mixed commercial use.
		
<b>Visual Quality Impacts</b>	Visual impacts around proposed station include areas of heavy urbanization including mixed residential, commercial, industrial, and freeways. Few areas of open space and natural vegetation proposed station location.	Visual impacts around LA Union Station include areas of heavy urbanization including commercial, industrial, office space, and freeways. Few areas of open space and natural vegetation occur around LA Union Station.
		
<i>Minimize Impacts to Natural Resources.</i>		
<b>Wetland Impacts</b>	No wetland impacts.	No wetland impacts.
		
<b>Water Resources</b>	No water resource impacts.	No water resource impacts.
		
<b>Floodplain Impacts</b>	No 100-year floodplain zone impacts.	No 100-year floodplain zone impacts.
		

Evaluation Criteria	LAX	LA Union Station
<b>Threatened &amp; Endangered Species Impacts</b>	Impacts to 1 endangered species from this station.	No impacts to any sensitive species.
	●	●
<i>Minimize Impacts to Social and Economic Resources.</i>		
<b>Environmental Justice Impacts (Demographics)</b>	No known impacts to any minority population and no known impacts to low-income households.	Potential impacts to a minority population of approximately 22 people. No known impacts to low-income households.
	●	●
<b>Community &amp; Neighborhood Impacts</b>	The cities of Los Angeles, Hawthorne and Inglewood and the communities of Lennox and Del Aire are impacted. Impacts to each city or community would depend upon proposed station site and location.	The City of Los Angeles and the downtown district of Chinatown are impacted. No impacts anticipated because LA Union Station is an operational rail station in current use.
	◐	◐
<b>Farmland Impacts</b>	No farmland impacts.	No farmland impacts.
	●	●
<i>Minimize Impacts to Cultural Resources.</i>		
<b>Cultural Resources Impacts</b>	No known cultural or historical sites.	3 cultural resources occur in the immediate vicinity.
	●	◐
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No Parks or Recreation/Wildlife Refuge resources.	There is 1 Park that occurs in the immediate vicinity of the station.
	●	●

Evaluation Criteria		LAX	LA Union Station
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>	2 distinct soil types occur within the area of the proposed station. Possible impacts from liquefaction also occur in the immediate vicinity.		
<b>Seismic Constraints</b>	There are potential impacts from 3 major seismic areas and faults.		
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>	No known hazardous material/waste sites in the immediate vicinity.		























































































Highly Unfavorable
 Highly Favorable

**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Station Evaluation Matrix**  
**LA Union Station to Central Orange County (Anaheim) – Southeast LA Stations**  
Station Name = Station Carried Forward      Station Name = Station Eliminated

Evaluation Criteria	Norwalk (Metrolink)	Norwalk – I-5 at Imperial Highway	Norwalk – UPRR at Imperial Highway	Paramount
<i>Maximize Ridership/Revenue Potential.</i>				
<b>Travel Time</b>				
<b>Population &amp; Employment Catchment</b>  <i>Data Based on 2020 Forecasts</i>	Population: 3,085,202 persons Employment: 1,460,673 persons	Population: 3,230,260 persons Employment: 1,468,155 persons	Population: 3,269,933 persons Employment: 1,436,802 persons	Population: 3,713,693 persons Employment: 1,616,168 persons
				
<i>Maximize Connectivity and Accessibility.</i>				
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>Long Beach Aprt –8mi. (12.8 km)</li> <li>I-5</li> <li>Arterials</li> <li>Amtrak</li> <li>MTA Buses</li> <li>Norwalk Transit</li> <li>Metrolink</li> </ul>	<ul style="list-style-type: none"> <li>Long Beach Aprt – 8mi. (12.8 km)</li> <li>I-5</li> <li>Arterials</li> <li>MTA Buses</li> <li>Norwalk Transit</li> </ul>	<ul style="list-style-type: none"> <li>Long Beach Aprt – 7mi. (11.2 km)</li> <li>I-5</li> <li>I-605</li> <li>I-105</li> <li>Arterials</li> <li>MTA Buses</li> <li>Norwalk Transit</li> </ul>	<ul style="list-style-type: none"> <li>Long Beach Aprt – 6mi. (9.6 km)</li> <li>I-105</li> <li>I-710</li> <li>Arterials</li> <li>MTA Buses</li> <li>Potential LRT station–MTA Green Line</li> </ul>
				
<i>Minimize Operating and Capital Costs.</i>				
<b>Operational Issues</b>	Shared-use with Amtrak and Metrolink	Dedicated Station (New)	Dedicated Station (New)	Dedicated Station (New)
				
<b>Construction Issues</b>	Expansion of existing station	Aerial station above I-5 Freeway	Trench platforms, station at grade	Aerial station with potential connection to light rail station in I-105 trench.
				

Evaluation Criteria	Norwalk (Metrolink)	Norwalk – I-5 at Imperial Highway	Norwalk – UPRR at Imperial Highway	Paramount
<b>Capital Cost</b>	Some cost offset by existing station.	New station	New station	New station + Green Line platform
				
<b>Right-of-Way Issues/Cost</b>	Existing facility, nearby vacant land	Constrained by freeway	Constrained by residential area to south.	Constrained by wide freeway trench below station.
				
<i>Maximize Compatibility with Existing and Planned Development.</i>				
<b>Land Use Compatibility and Conflicts</b>	Land use is heavy urbanization with a mixture of residential, commercial, and light industrial.	Land use is heavy urbanization with a mixture of residential, commercial, and light industrial.	Land use is heavy urbanization with a mixture of residential, commercial, and light industrial.	Land use is heavy urbanization with a mixture of residential, commercial, and industrial.
				
<b>Visual Quality Impacts</b>	Visual impacts around proposed station include areas of heavy urbanization including mixed residential, commercial, industrial, utility lines and freeways. Few areas of open space and natural vegetation in the vicinity of the proposed station location.	Visual impacts around proposed station include areas of heavy urbanization including mixed residential, commercial, industrial, utility lines and freeways. Few areas of open space and natural vegetation in the vicinity of the proposed station location.	Visual impacts around proposed station include areas of heavy urbanization including mixed residential, commercial, industrial, utility lines and freeways. Few areas of open space and natural vegetation in the vicinity of the proposed station location.	Visual impacts around proposed station include areas of heavy urbanization including mixed residential, commercial, industrial, utility lines and freeways. Few areas of open space and natural vegetation in the vicinity of the proposed station location.
				
<i>Minimize Impacts to Natural Resources.</i>				
<b>Wetland Impacts</b>	No wetland impacts.	No wetland impacts.	No wetland impacts.	No wetland impacts.
				
<b>Water Resources</b>	No water resource impacts.	No water resource impacts.	No water resource impacts.	No water resource impacts.
				
<b>Floodplain Impacts</b>	No floodplain impacts.	No floodplain impacts.	No floodplain impacts.	No floodplain impacts.
				

<b>Evaluation Criteria</b>	<b>Norwalk (Metrolink)</b>	<b>Norwalk – I-5 at Imperial Highway</b>	<b>Norwalk – UPRR at Imperial Highway</b>	<b>Paramount</b>
<b>Threatened &amp; Endangered Species Impacts</b>	No impacts to any sensitive species. 	No impacts to any sensitive species. 	No impacts to any sensitive species. 	No impacts to any sensitive species. 
<i>Minimize Impacts to Social and Economic Resources.</i>				
<b>Environmental Justice Impacts (Demographics)</b>	Potential impacts to a minority population of approximately 3,300 people and known impacts to 5 low-income households. 	Potential impacts to a minority population of approximately 2,800 people. No known impacts to any low-income households. 	Potential impacts to a minority population of approximately 2,800 people and known impacts to 5 low-income households. 	Potential impacts to a minority population of approximately 3,250 people. No known impacts to any low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	The cities of Norwalk and Santa Fe Springs would be impacted. Impacts to either city would depend upon proposed station site and location. 	The cities of Norwalk and Santa Fe Springs would be impacted. Impacts to either city would depend upon proposed station site and location. 	The cities of Norwalk and Santa Fe Springs would be impacted. Impacts to either city would depend upon proposed station site and location. 	The cities of Paramount and South Gate and the community of Hollydale would be impacted. Impacts to either city would depend upon proposed station site and location. 
<b>Farmland Impacts</b>	No farmland impacts. 	No farmland impacts. 	No farmland impacts. 	No farmland impacts. 
<i>Minimize Impacts to Cultural Resources.</i>				
<b>Cultural Resources Impacts</b>	No cultural resources. 	No cultural resources. 	No cultural resources. 	No cultural resources. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No Parks or Recreation/Wildlife Refuge resources. 	No Parks or Recreation/Wildlife Refuge resources. 	No Parks or Recreation/Wildlife Refuge resources. 	No Parks or Recreation/Wildlife Refuge resources. 
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>				
<b>Soils/Slope Constraints</b>	There is 1 distinct soil type. Possible impacts from liquefaction in the immediate vicinity. 	There is 1 distinct soil type. Possible impacts from liquefaction in the immediate vicinity. 	There is 1 distinct soil type. Possible impacts from liquefaction in the immediate vicinity. 	There is 1 distinct soil type. Possible impacts from liquefaction in the immediate vicinity. 

Evaluation Criteria	Norwalk (Metrolink)	Norwalk – I-5 at Imperial Highway	Norwalk – UPRR at Imperial Highway	Paramount
<b>Seismic Constraints</b>	There are potential impacts from 3 major seismic areas and faults. 	There are potential impacts from 3 major seismic areas and faults. 	There are potential impacts from 3 major seismic areas and faults. 	There are potential impacts from 3 major seismic areas and faults. 
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>				
<b>Hazardous Materials/Waste Constraints</b>	There are 2 known hazardous material/waste sites in the immediate vicinity. 	No known hazardous material/waste sites. 	No known hazardous material/waste sites. 	No known hazardous material/waste sites. 


























Highly Unfavorable































Highly Favorable

**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Station Evaluation Matrix**  
**LA Union Station to Central Orange County (Anaheim) – Central Orange County Stations**  
**Station Name** = Station Carried Forward      **Station Name** = Station Eliminated

Evaluation Criteria	Anaheim (Edison Field/Metrolink)	Anaheim – Interstate 5	Garden Grove
<i>Maximize Ridership/Revenue Potential.</i>			
<b>Travel Time</b>			
<b>Population &amp; Employment Catchment</b>  <i>Data Based on 2020 Forecasts</i>	Population: 2,456,616 persons Employment: 1,455,235 persons	Population: 2,588,844 persons Employment: 1,484,922 persons	Population: 2,628,764 persons Employment: 1,546,843 persons
	●	●	●
<i>Maximize Connectivity and Accessibility.</i>			
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• John Wayne – 9mi. (14.4 km)</li> <li>• I-5</li> <li>• SR-57</li> <li>• Arterials</li> <li>• Amtrak</li> <li>• OCTA Buses</li> <li>• Anaheim Resort Shuttles</li> <li>• Metrolink</li> </ul>	<ul style="list-style-type: none"> <li>• John Wayne – 8.5mi. (13.6 km)</li> <li>• I-5</li> <li>• Arterials</li> <li>• OCTA Buses</li> </ul>	<ul style="list-style-type: none"> <li>• John Wayne – 6.5mi. (10.4 km)</li> <li>• SR-22</li> <li>• Arterials</li> <li>• OCTA Buses</li> </ul>
	●	●	●
<i>Minimize Operating and Capital Costs.</i>			
<b>Operational Issues</b>	Shared-use with Amtrak and Metrolink.	New VHS/Maglev Station	New VHS/Maglev Station
	●	●	●
<b>Construction Issues</b>	Expand existing station, replace station building.	New station - aerial	New station - below grade platforms.
	●	●	●

<b>Evaluation Criteria</b>	<b>Anaheim (Edison Field/Metrolink)</b>	<b>Anaheim – Interstate 5</b>	<b>Garden Grove</b>
<b>Capital Cost</b>	Some cost off set by existing station.	New station - aerial platforms	New station - below grade platforms.
			
<b>Right-of-Way Issues/Cost</b>	Existing facility; nearby parking lot	Constrained ROW	Constrained ROW
			
<i>Maximize Compatibility with Existing and Planned Development.</i>			
<b>Land Use Compatibility and Conflicts</b>	Land use is mixed commercial, light industrial, office space, and recreational with some areas of open space.	Land use is mixed commercial, light industrial, office space, and recreational with some areas of open space.	Land use is mixed commercial, light industrial, office space with some areas of open space, and residential.
			
<b>Visual Quality Impacts</b>	Visual impacts around proposed station include areas of urbanization including mixed commercial, industrial, utility lines, freeways and Anaheim stadium. Few areas of open space and natural vegetation in the vicinity of the proposed station location except for along the Santa Ana river.	Visual impacts around proposed station include areas of urbanization including mixed commercial, industrial, utility lines, freeways, Anaheim stadium and The Block of Orange. Few areas of open space and natural vegetation in the vicinity of the proposed station location except for along the Santa Ana river.	Visual impacts around proposed station include areas of urbanization including mixed residential, commercial, industrial, utility lines, and freeways. Few areas of open space and natural vegetation in the vicinity of the proposed station location except for along the Santa Ana river.
			
<i>Minimize Impacts to Natural Resources.</i>			
<b>Wetland Impacts</b>	No wetland impacts.	No wetland impacts.	No wetland impacts.
			
<b>Water Resources</b>	No water resource impacts.	No water resource impacts.	No water resource impacts.
			
<b>Floodplain Impacts</b>	There is 1 floodplain impacted.	There is 1 floodplain impacted.	There is 1 floodplain impacted.
			

<b>Evaluation Criteria</b>	<b>Anaheim (Edison Field/Metrolink)</b>	<b>Anaheim – Interstate 5</b>	<b>Garden Grove</b>
<b>Threatened &amp; Endangered Species Impacts</b>	Impact to San Fernando Valley Spineflower. 	Impact to San Fernando Valley Spineflower. 	Impact to San Fernando Valley Spineflower. 
<i>Minimize Impacts to Social and Economic Resources.</i>			
<b>Environmental Justice Impacts (Demographics)</b>	No known impacts to any minority population or low-income households. 	Potential impacts to a minority population of approximately 3,200 people. No known impacts to any low-income households. 	Potential impacts to a minority population of approximately 8,000 people. No known impacts to any low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	The City of Anaheim would be impacted. 	The City of Anaheim would be impacted. 	The City of Garden Grove would be impacted. 
<b>Farmland Impacts</b>	No farmland impacts. 	No farmland impacts. 	No farmland impacts. 
<i>Minimize Impacts to Cultural Resources.</i>			
<b>Cultural Resources Impacts</b>	No known cultural resources. 	No known cultural resources. 	No known cultural resources. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No parks and recreation/wildlife refuge resources. 	No parks and recreation/wildlife refuge resources. 	No parks and recreation/wildlife refuge resources. 
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>	There is 1 distinct soil type. Possible impacts from liquefaction. 	There is 1 distinct soil type. Possible impacts from liquefaction. 	There is 1 distinct soil type. Possible impacts from liquefaction. 

Evaluation Criteria	Anaheim (Edison Field/Metrolink)	Anaheim – Interstate 5	Garden Grove
<b>Seismic Constraints</b>	Potential impacts from 2 major seismic areas and faults.	Potential impacts from 2 major seismic areas and faults.	Potential impacts from 2 major seismic areas and faults.
			
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>	There is 1 known hazardous material/waste site in the immediate vicinity.	No known hazardous material/waste sites.	There is 1 known hazardous material/waste site in the immediate vicinity.
			



































































Highly Unfavorable      Highly Favorable

**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County - High-Speed Train Station Evaluation Matrix**  
**Central Orange County (Anaheim) to Oceanside – Southern Orange County Stations**  
**Station Name** = Station Carried Forward **Station Name** = Station Eliminated

Evaluation Criteria	Irvine Transportation Center	Irvine – I-5 at Jeffery Road	Newport Beach
<i>Maximize Ridership/Revenue Potential.</i>			
<b>Travel Time</b>			
<b>Population &amp; Employment Catchment</b>  <i>Data Based on 2020 Forecasts</i>	Population: 1,307,800 persons Employment: 906,503 persons	Population: 1,618,714 persons Employment: 1,149,916 persons	Population: 1,705,610 persons Employment: 1,200,373 persons
			
<i>Maximize Connectivity and Accessibility.</i>			
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• John Wayne – 7.5mi (12 km)</li> <li>• I-5</li> <li>• Arterials</li> <li>• Amtrak</li> <li>• OCTA Buses</li> <li>• Metrolink</li> </ul>	<ul style="list-style-type: none"> <li>• John Wayne – 5.5mi. (8.8 km)</li> <li>• I-5</li> <li>• I-405</li> <li>• Arterials</li> <li>• OCTA Buses</li> </ul>	<ul style="list-style-type: none"> <li>• John Wayne – 1.5 mi (2.9 km)</li> <li>• SR-73</li> <li>• Arterials</li> <li>• OCTA Buses</li> </ul>
			
<i>Minimize Operating and Capital Costs.</i>			
<b>Operational Issues</b>	Shared-use with Amtrak and Metrolink.	New VHS/Maglev station	New VHS/Maglev station
			
<b>Construction Issues</b>	Existing station, but potential flight path restrictions (El Toro) on structures.	New aerial station; nearby freeway interchanges	Location on curve and in a trench; is a challenge; nearby freeway ramps and drainage channel in vicinity.
			

<b>Evaluation Criteria</b>	<b>Irvine Transportation Center</b>	<b>Irvine – I-5 at Jeffery Road</b>	<b>Newport Beach</b>
<b>Capital Cost</b>	Existing station off sets some costs 	New station - aerial 	New station; site complicated by roads and drainage channel at site. 
<b>Right-of-Way Issues/Cost</b>	Existing site, plus new land 	New land; proximity to “Old town Irvine” a potential issue. 	Highly constrained by freeway & arterial roads. 
<i>Maximize Compatibility with Existing and Planned Development.</i>			
<b>Land Use Compatibility and Conflicts</b>	Land use is mixed residential, commercial, light industrial, office space, with some areas of open space and farmland. 	Land use is mixed residential, commercial, light industrial, office space, with some areas of open space and farmland. 	Land use is mixed residential, commercial, office space, with some areas of open space and recreational uses. 
<b>Visual Quality Impacts</b>	Visual impacts around proposed station include residential, mixed commercial, industrial, freeways. Areas of open space, natural vegetation, and farmland in the vicinity of the proposed station location. 	Visual impacts around proposed station include residential, mixed commercial, industrial, freeways. Areas of open space, natural vegetation, and farmland in the vicinity of the proposed station location. 	Visual impacts around proposed station include mixed residential, commercial, office space, and freeways. Areas of open space, natural vegetation, and Newport Back Bay are in the vicinity of the proposed station location. 
<i>Minimize Impacts to Natural Resources.</i>			
<b>Wetland Impacts</b>	No wetland impacts. 	No wetland impacts. 	No wetland impacts. 
<b>Water Resources</b>	No water resource impacts. 	No water resource impacts. 	No water resource impacts. 
<b>Floodplain Impacts</b>	There is 1 100-year floodplain zone impact. 	There is 1 100-year floodplain zone impact. 	No floodplain impacts. 

Evaluation Criteria	Irvine Transportation Center	Irvine – I-5 at Jeffery Road	Newport Beach
<b>Threatened &amp; Endangered Species Impacts</b>	No impacts to any sensitive species. 	No impacts to any sensitive species. 	Impacts to 3 threatened or endangered species or species of special concern. 
<i>Minimize Impacts to Social and Economic Resources.</i>			
<b>Environmental Justice Impacts (Demographics)</b>	No known impacts to any minority population or low-income households. 	No known impacts to any minority population or low-income households. 	No known impacts to any minority population or low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	The City of Irvine would be impacted. 	The City of Irvine would be impacted. 	The City of Newport Beach and community of Santa Ana Heights would be impacted. 
<b>Farmland Impacts</b>	No farmland impacts. 	Impacts to several parcels of Prime Farmland. 	No farmland impacts. 
<i>Minimize Impacts to Cultural Resources.</i>			
<b>Cultural Resources Impacts</b>	No known cultural resources. 	No known cultural resources. 	No known cultural resources. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No parks or recreation/wildlife refuge resources. 	No parks or recreation/wildlife refuge resources. 	No parks or recreation/wildlife refuge resources. 
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>	There is 1 distinct soil type. Possible impacts from liquefaction. 	There is 1 distinct soil type. Possible impacts from liquefaction. 	There is 1 distinct soil type. Possible impacts from liquefaction. 

Evaluation Criteria	Irvine Transportation Center	Irvine – I-5 at Jeffery Road	Newport Beach
<b>Seismic Constraints</b>	Potential impacts from 1 major seismic area and fault.	Potential impacts from 1 major seismic area and fault.	Potential impacts from one major seismic area and fault.
			
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>	No known hazardous material/waste sites.	No known hazardous material/waste sites.	No known hazardous material/waste sites.
			



























  
 Highly Unfavorable      Highly Favorable













**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Station Evaluation Matrix**  
**Central Orange County (Anaheim) to Oceanside – North San Diego County Stations**







**Station Name** = Station Carried Forward

**Station Name** = Station Eliminated

Evaluation Criteria	Oceanside Transportation Center	Oceanside– I-5 at Oceanside Blvd.
<i>Maximize Ridership/Revenue Potential.</i>		
<b>Travel Time</b>		
<b>Population &amp; Employment Catchment</b>	Population: 458,045 persons Employment: 259,653 persons	Population: 507,306 persons Employment: 273,692 persons
<i>Data Based on 2020 Forecasts</i>		
<i>Maximize Connectivity and Accessibility.</i>		
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>• Lindbergh – 34mi. (54.4 km)</li> <li>• I-5</li> <li>• Arterials</li> <li>• NCTD Buses</li> <li>• Amtrak</li> <li>• Coaster</li> <li>• Metrolink</li> <li>• NCTD Oceanside/Escondido LRT</li> </ul>	<ul style="list-style-type: none"> <li>• Lindbergh – 33mi. (52.8 km)</li> <li>• I-5</li> <li>• Arterials</li> <li>• NCTD Buses</li> <li>• <i>Potential LRT station - NCTD Oceanside/Escondido Line</i></li> </ul>
		
<i>Minimize Operating and Capital Costs.</i>		
<b>Operational Issues</b>	Shared-use with Amtrak, Coaster, and Metrolink	New VHS/Maglev station
		
<b>Construction Issues</b>	New tracks; and one configuration has depressed alignment.	New station - aerial
		

Evaluation Criteria	Oceanside Transportation Center	Oceanside– I-5 at Oceanside Blvd.
<b>Capital Cost</b>	Existing station off sets some costs.	New station - aerial
		
<b>Right-of-Way Issues/Cost</b>	Constrained by tracks for future Oceanside-Escondido LRT.	I-5 bordered by private property
		
<i>Maximize Compatibility with Existing and Planned Development.</i>		
<b>Land Use Compatibility and Conflicts</b>	Land use is mixed residential, commercial, office space, with some areas of open space and recreational uses.	Land use is mixed residential, commercial, office space, with some areas of open space and recreational uses.
		
<b>Visual Quality Impacts</b>	View impacts around proposed station include residential, mixed commercial, and I-5 freeway. Some areas of open space, natural vegetation, beaches, and the Pacific Ocean dominate the views in the vicinity of the proposed station location.	View impacts around proposed station include residential, mixed commercial, and I-5 freeway. Some areas of open space, natural vegetation, beaches, and the Pacific Ocean dominate the views in the vicinity of the proposed station location.
		
<i>Minimize Impacts to Natural Resources.</i>		
<b>Wetland Impacts</b>	Impact to 1 wetland.	Impacts to 1 wetland.
		
<b>Water Resources</b>	No water resource impacts.	No water resource impacts.
		
<b>Floodplain Impacts</b>	There is 1 100-year floodplain zone impacted.	There is 1 100-year floodplain zone impacted.
		

<b>Evaluation Criteria</b>	<b>Oceanside Transportation Center</b>	<b>Oceanside– I-5 at Oceanside Blvd.</b>
<b>Threatened &amp; Endangered Species Impacts</b>	Impact to 1 threatened or endangered species or species of special concern. 	Impact to 1 threatened or endangered species or species of special concern. 
<i>Minimize Impacts to Social and Economic Resources.</i>		
<b>Environmental Justice Impacts (Demographics)</b>	Potential impacts to a minority population of approximately 300 people. No known impacts to any low-income households. 	Potential impacts to a minority population of approximately 650 people. No known impacts to any low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	The City of Oceanside would be impacted. 	The City of Oceanside would be impacted. 
<b>Farmland Impacts</b>	No farmland impacts. 	No farmland impacts. 
<i>Minimize Impacts to Cultural Resources.</i>		
<b>Cultural Resources Impacts</b>	There is 1 known cultural resource in the immediate vicinity. 	There is 1 known cultural resource in the immediate vicinity. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No parks or recreation/wildlife refuge resources. 	No parks or recreation/wildlife refuge resources. 

<b>Evaluation Criteria</b>	<b>Oceanside Transportation Center</b>	<b>Oceanside— I-5 at Oceanside Blvd.</b>
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>		
<b>Soils/Slope Constraints</b>	There is 1 distinct soil type. Possible impacts from liquefaction occur in the immediate vicinity.	There is 1 distinct soil type. Possible impacts from liquefaction occur in the immediate vicinity.
		
<b>Seismic Constraints</b>	Potential impacts from 1 major seismic area and fault.	Potential impacts from 1 major seismic area and fault.
		
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>		
<b>Hazardous Materials/Waste Constraints</b>	There is 1 known hazardous material/waste site in the immediate vicinity.	No known hazardous material/waste sites.
		






































  
**Highly Unfavorable**                      **Highly Favorable**

**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Station Evaluation Matrix**  
**Oceanside to San Diego – Central San Diego County Stations**










**Station Name** = Station Carried Forward

**Station Name** = Station Eliminated

Evaluation Criteria	Solana Beach - Amtrak	Solana Beach – I-5 at Lomas Santa Fe Dr.	University Towne Centre
<i>Maximize Ridership/Revenue Potential.</i>			
<b>Travel Time</b>			
<b>Population &amp; Employment Catchment</b>  <i>Data Based on 2020 Forecasts</i>	Population: 496,489 persons Employment: 305,176 persons	Population: 560,328 persons Employment: 348,080 persons	Population: 888,420 persons Employment: 549,639 persons
			
<i>Maximize Connectivity and Accessibility.</i>			
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>SD Airport – 17mi. (27.2 km)</li> <li>I-5</li> <li>Arterials</li> <li>NCTD Buses</li> <li>Coaster</li> <li>Amtrak</li> </ul>	<ul style="list-style-type: none"> <li>SD Airport – 17mi. (27.2 km)</li> <li>I-5</li> <li>NCTD Buses</li> </ul>	<ul style="list-style-type: none"> <li>SD Airport – 9.5mi. (15.2 km)</li> <li>I-5</li> <li>Arterials</li> <li>NCTD Buses</li> <li>MTDB Buses</li> <li>Potential LRT station - San Diego Trolley</li> </ul>
			
<i>Minimize Operating and Capital Costs.</i>			
<b>Operational Issues</b>	Shared-use	New VHS/Maglev station	New VHS/Maglev station - Shared-use
			
<b>Construction Issues</b>	Station platforms already in a trench; difficult to widen for more tracks.	Narrow I-5 median; little ROW	Station in deep tunnel under UTC.
			

<b>Evaluation Criteria</b>	<b>Solana Beach - Amtrak</b>	<b>Solana Beach – I-5 at Lomas Santa Fe Dr.</b>	<b>University Towne Centre</b>
<b>Capital Cost</b>	Partially off set by existing station 	New station - aerial 	Highest capital cost of the 3 options because station is in a tunnel. 
<b>Right-of-Way Issues/Cost</b>	Partially off set by existing station 	Narrow I-5 median; little ROW 	Tunnel below public streets. 
<i>Maximize Compatibility with Existing and Planned Development.</i>			
<b>Land Use Compatibility and Conflicts</b>	Land use is mixed residential and commercial with some areas of open space and recreational uses. 	Land use is mixed residential and commercial with some areas of open space and recreational uses. 	Land use is mixed residential, light industrial and commercial, and areas of open space. 
<b>Visual Quality Impacts</b>	View impacts around proposed station include residential, light commercial, and I-5 freeway. Some areas of open space, natural vegetation, beaches, and the Pacific Ocean dominate the views in the vicinity of the proposed station location. 	View impacts around proposed station include residential, light commercial, and I-5 freeway. Some areas of open space, natural vegetation, beaches, and the Pacific Ocean dominate the views in the vicinity of the proposed station location. 	View impacts around proposed station include mixed residential, and I-5 freeway. Areas of open space, natural vegetation, rolling hills, beaches, and the Pacific Ocean dominate the views in the vicinity of the proposed station location. The station is in close proximity to the UCSD campus. 
<i>Minimize Impacts to Natural Resources.</i>			
<b>Wetland Impacts</b>	No wetland impacts. 	Impact to 1 wetland. 	No wetland impacts. 
<b>Water Resources</b>	No water resource impacts. 	No water resource impacts. 	No water resource impacts. 
<b>Floodplain Impacts</b>	No floodplain impacts. 	There is 1 100-year floodplain zone impact. 	No floodplain impacts. 

<b>Evaluation Criteria</b>	<b>Solana Beach - Amtrak</b>	<b>Solana Beach – I-5 at Lomas Santa Fe Dr.</b>	<b>University Towne Centre</b>
<b>Threatened &amp; Endangered Species Impacts</b>	No impacts to any sensitive species. ●	No impacts to any sensitive species. ●	Impacts to two threatened or endangered species or species of special concern. ◐
<i>Minimize Impacts to Social and Economic Resources.</i>			
<b>Environmental Justice Impacts (Demographics)</b>	No known impacts to any minority population or low-income households. ●	No known impacts to any minority population or low-income households. ●	No known impacts to any minority population or low-income households. ●
<b>Community &amp; Neighborhood Impacts</b>	Solana Beach and Eden Gardens would be impacted. ◐	Solana Beach and Eden Gardens would be impacted. ◐	The City of San Diego and the community of University City would be impacted. ◐
<b>Farmland Impacts</b>	No farmland impacts. ●	No farmland impacts. ●	No farmland impacts. ●
<i>Minimize Impacts to Cultural Resources.</i>			
<b>Cultural Resources Impacts</b>	There is 1 cultural resource in the immediate vicinity. ◐	There is 1 cultural resource in the immediate vicinity. ◐	There is 1 cultural resource in the immediate vicinity. ◐
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No parks or recreation/wildlife refuge resources. ●	No parks or recreation/wildlife refuge resources. ●	No parks or recreation/wildlife refuge resources. ●

Evaluation Criteria	Solana Beach - Amtrak	Solana Beach – I-5 at Lomas Santa Fe Dr.	University Towne Centre
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>			
<b>Soils/Slope Constraints</b>	There is 1 distinct soil type. Possible impacts from liquefaction occur in the immediate vicinity.	There is 1 distinct soil type. Possible impacts from liquefaction occur in the immediate vicinity.	There is 1 distinct soil type. Possible impacts from liquefaction occur in the immediate vicinity.
			
<b>Seismic Constraints</b>	Potential impacts from 1 major seismic area and fault.	Potential impacts from 1 major seismic area and fault.	Potential impacts from 1 major seismic area and fault.
			
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>			
<b>Hazardous Materials/Waste Constraints</b>	No known hazardous material/waste sites.	No known hazardous material/waste sites.	No known hazardous material/waste sites.
			



























  
**Highly Unfavorable**      **Highly Favorable**















**Table 2-H-20 continued**  
**Los Angeles to San Diego via Orange County – High-Speed Train Station Evaluation Matrix**  
**Oceanside to San Diego – Downtown / Airport Stations**





**Station Name** = Station Carried Forward

**Station Name** = Station Eliminated

Evaluation Criteria	Santa Fe Depot	San Diego Airport
<i>Maximize Ridership/Revenue Potential.</i>		
<b>Travel Time</b>	Refer to Options D1a and D1b	Refer to Option D2
<b>Population &amp; Employment Catchment</b>  <i>Data Based on 2020 Forecasts</i>	Population: 1,262,755 persons Employment: 661,334 persons	Population: 1,311,448 persons Employment: 698,369 persons
		
<i>Maximize Connectivity and Accessibility.</i>		
<b>Intermodal Connections</b>	<ul style="list-style-type: none"> <li>SD Airport – 1.5mi. (2.4 km)</li> <li>I-5</li> <li>Arterials</li> <li>MTDB Buses</li> <li>San Diego Trolley</li> <li>Amtrak</li> <li>Coaster</li> </ul> <i>For details refer to Intermodal Connections in Section 4.1.4</i>	<ul style="list-style-type: none"> <li>SD Airport – 1 mi. (1.6 km)</li> <li>I-5</li> <li>Arterials</li> <li>MTDB Buses</li> <li>San Diego Trolley</li> </ul> <i>For details refer to Intermodal Connections in Section 4.1.4</i>
		
<i>Minimize Operating and Capital Costs.</i>		
<b>Operational Issues</b>	Shared-use with Amtrak and Coaster	New VHS/Maglev; optional LOSSAN site.
		
<b>Construction Issues</b>	Existing historic station; existing hub for local transit including light-rail. Under Option D1b, VHS train platforms would be below grade.	Aerial station, challenge is proximity to I-5 and the San Diego Trolley station.
		

Evaluation Criteria	Santa Fe Depot	San Diego Airport
<b>Capital Cost</b>	Partial off set by existing station. 	New station 
<b>Right-of-Way Issues/Cost</b>	Partial off set by existing station. 	New station in highly constrained area. 
<i>Maximize Compatibility with Existing and Planned Development.</i>		
<b>Land Use Compatibility and Conflicts</b>	Land use is common to heavy urbanized downtown areas with a mixture of residential, commercial, industrial, heavy office space, and transportation centers. 	Land use is common to heavy urbanized downtown areas with a mixture of residential, commercial, industrial, heavy office space, and transportation centers. 
<b>Visual Quality Impacts</b>	Visual impacts around proposed station are heavy urbanization including mixed residential, commercial, industrial, and utility lines. No areas of open space or natural vegetation. San Diego Bay and the Pacific Ocean dominate the view to the west. 	Visual impacts around proposed station are heavy urbanization including mixed residential, commercial, industrial, and utility lines. No areas of open space or natural vegetation. San Diego Bay and the Pacific Ocean dominate the view to the west. 
<i>Minimize Impacts to Natural Resources.</i>		
<b>Wetland Impacts</b>	No wetland impacts. 	No wetland impacts. 
<b>Water Resources</b>	No water resource impacts. 	No water resource impacts. 
<b>Floodplain Impacts</b>	No floodplain impacts. 	No floodplain impacts. 

Evaluation Criteria	Santa Fe Depot	San Diego Airport
<b>Threatened &amp; Endangered Species Impacts</b>	No impacts to any sensitive species. 	No impacts to any sensitive species. 
<i>Minimize Impacts to Social and Economic Resources.</i>		
<b>Environmental Justice Impacts (Demographics)</b>	No known impacts to any minority population or low-income households. 	Potential impacts to minority population of approximately 500 people. No known impacts to any low-income households. 
<b>Community &amp; Neighborhood Impacts</b>	The City of San Diego, Old Town, and Loma Portal would be impacted. 	The City of San Diego and Middle Town would be impacted. 
<b>Farmland Impacts</b>	No farmland impacts. 	No farmland impacts. 
<i>Minimize Impacts to Cultural Resources.</i>		
<b>Cultural Resources Impacts</b>	There are several cultural resources that occur in the immediate vicinity. 	There is one cultural resource that occurs in the immediate vicinity. 
<b>Parks &amp; Recreation/Wildlife Refuge Impacts</b>	No parks or recreation/wildlife refuge resources. 	No parks or recreation/wildlife refuge resources. 
<i>Maximize Avoidance of Areas with Geologic and Soils Constraints.</i>		
<b>Soils/Slope Constraints</b>	One distinct soil type occurs within the area of the proposed station. Possible impacts from liquefaction occur in the immediate vicinity of the proposed station. 	One distinct soil type occurs within the area of the proposed station. Possible impacts from liquefaction occur in the immediate vicinity of the proposed station. 

Evaluation Criteria	Santa Fe Depot	San Diego Airport
<b>Seismic Constraints</b>	Potential impacts from 1 major seismic area and fault. 	Potential impacts from 1 major seismic area and fault. 
<i>Maximize Avoidance of Areas with Potential Hazardous Materials.</i>		
<b>Hazardous Materials/Waste Constraints</b>	No known hazardous material/waste sites. 	There are 2 known hazardous material/waste sites in the immediate vicinity. 





  
 Highly Unfavorable      Highly Favorable